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INCIDENCE OF COMPLICATIONS FROM INDWELLING VENOUS CATHETERS

• Intravenous catheters have recently been called a two-edged sword. This article presents recent work done at the Wilmington Medical Center which we hope will shed more light on the benefit and dangers of these devices.

Robert B. Brereton, M.D.

There have been a number of reports in the recent literature relating prolonged venous catheterization and septicemia.[1–4] While the intravenous catheter provides a direct route for microorganisms to enter the blood stream, other factors are involved in the increased incidence of septicemia. These factors include the underlying disease state, the concomitant use of various drugs, the mechanical placement of the intravenous device, and the duration of its use. Since there is no doubt that the venous catheter does play an important role in patient care, it was decided to study the incidence of complications from these devices at the Delaware Division of the Wilmington Medical Center, to better understand how to prevent these complications.

Method

Patients from the medical and surgical wards, private medical teaching service, and intensive care unit were used in the study. Nearly all were adults. An attempt was made to culture intravenous catheters which were in place less than 48 hours and those in place longer than 48 hours. Initially it was expected that the number of "cutdown-type" catheters would be comparable to the number of percutaneous venous catheters and that wound cultures prior to venesection could be obtained on all "cutdowns" performed. Because of difficulties in communication, this proved impractical so that most of the cases studied had percutaneous venous catheters. A total of 71 cultures were taken between October 15 and December 15, 1967. In a few instances, more than one venous catheter was cultured per patient. There were 63 percutaneous venous catheters of which 34 were in place less than 48 hours and 29 were in place longer than 48 hours. Only eight cutdowns were cultured and all were in the vein for at least four days. These cases studied included catheters for central venous pressure monitoring and cardiac pacing as well as those for intravenous fluid administration. The catheters were cultured at the time of removal or change of site by a technique similar to that described by Druskin in 1963.[5] As soon as the dressing was removed, the catheter-skin junction site was

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Dr. Brereton is Senior Resident, Department of Medicine, Delaware Division, Wilmington Medical Center.

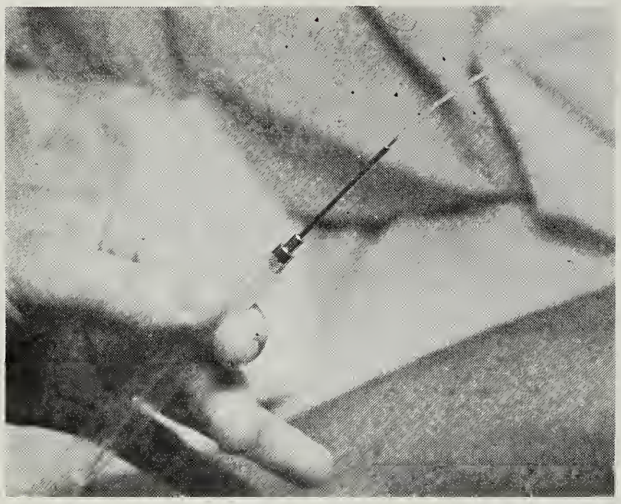

Figure 1

Percutaneous I.V. needle and catheter with catheter threaded through needle.

cultured with a swab moistened in nutrient broth. This site was then cleansed briskly for 60 seconds with two sterile gauze sponges moistened with tincture of benzalkonium chloride 1:750 and the excess wiped off. Using sterile instruments, the catheter was then removed from the vein and the distal two centimeters of the catheter placed into a tube of thioglycollate broth.

The skin swabs were subsequently cultured on blood agar plates and in thioglycollate broth. These media, along with the catheter tips, were incubated at 37 C and read at 24 and 48 hours. If there was obvious growth or suspicious turbidity in the broth medium, a gram stain was made, and the broth was subcultured to blood agar. If an anaerobe was suspected, the broth was subcultured to blood agar and incubated anaerobically. Cultures which revealed yeast cells were subcultured to chlamydospore agar. Gram-negative rods were further identified by conventional biochemical tests. Coagulase-positive staphylococci as well as other pathogens were tested *in vitro* for antibiotic sensitivity by the agar plate-disc technique. Stock cultures of coagulase-positive staphylococci were sent to the National Communicable Disease Center for phage typing. Pathogenic organisms obtained from the skin site and/or catheter tip were reported to the house officer or attending physician in charge of the patient. A data sheet was kept for each patient on which was recorded the bacteriologic data and pertinent clinical information about the patient. The underlying disease state, current drug therapy, person who placed the catheter, and the presence or absence of phlebitis were included in the information recorded on the data sheet.

An evaluation of the technique of skin preparation was also included in this study, in order to compare the incidence of complications following introduction of percutaneous venous catheters. The nurses of the I. V. team, using tincture of iodine followed by 70% isopropyl alcohol, placed the majority of these catheters (86%); the remainder were introduced by other personnel using various skin preps.

Results

The overall incidence of clinical phlebitis was 20.5% for the group with percutaneous catheters in place for 48 hours or less and 44% for those over 48 hours. The iodine and alcohol skin preparation used by the I. V. team resulted in an incidence of phlebitis for the 48 hour or less group of 17% compared to 45% for those greater than 48 hours.

Two out of seven (28%) of the cutdown catheters produced some degree of clinical phlebitis. One cutdown catheter was not included since it was removed and cultured by someone other than the author.

Two of the seven patients with phlebitis from percutaneous catheters in the "48 hour or less" group showed bacterial growth at the skin site. One was a pathogen, *Clostridium perfringens*, from a terminal cancer patient. For technical reasons, the culture of the catheter itself was not possible. In the "48 hour or greater" group, seven out of thirteen patients with phlebitis from percutaneous catheters showed bacterial growth at either the skin site, the catheter, or both. Three of these were pathogens (enterococci, 2; alpha-hemolytic streptococcus, 1) and all were grown from the catheter.

Sixty-two percent of the patients were receiving antibiotics, 88% of which were of the broad spectrum type. The most frequently-

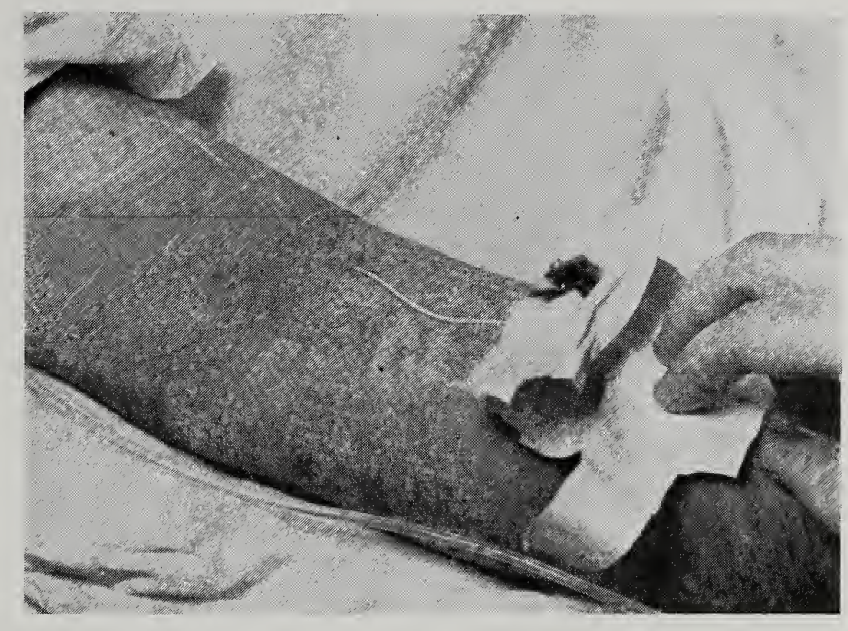

Figure 2
Removal of dressing showing catheter—skin junction site.

used agents were cephalothin, ampicillin, and chloramphenicol. Four of the 14 patients (28%) with percutaneous catheters in the vein longer than 48 hours who were receiving broad spectrum antibiotics had growth on the catheter. Fifty percent of the patients with cutdown type catheter (at least four days duration) showed growth on the catheter, while receiving broad spectrum antibiotics. In the 17 patients who had percutaneous catheters in place less than 48 hours and received broad spectrum antibiotics, there were no positive catheter cultures. In comparing patients with percutaneous catheters who had pathogenic organisms isolated from the skin and/or catheter, little difference was noted between the group receiving broad spectrum antibiotics and those not receiving such drugs (Table 3). Of the eight patients in whom pathogens were recovered from their catheter tip only, four were receiving broad spectrum antibiotics and in all four, the catheter was in the vein for greater than 48 hours (three were of the cutdown type).

Ten patients were receiving corticosteroids or other anti-inflammatory agents, such as phenylbutozone, at the time of the culture and none of the patients in the study were receiving cytotoxic drugs.

The most common non-pathogenic skin bacteria were the coagulase-negative staphylococci, *Bacillus* species, saphrophytic yeasts, and diphtheroids. Of the pathogens on the skin, *Staphylococcus aureus* was isolated on two occasions, enterococcus twice, *Clostridium perfringens* once, a spreading *Proteus* species once, *Candida albicans* once, and *Alcaligenes* species once. The catheter tips yielded eleven strains of coagulase-negative staphylococci, two saphrophytic yeasts, and two *Bacillus* species. Pathogens isolated from catheter tips consisted of three strains of enterococcus, two of *Staphylococcus aureus*, and one isolate each of a spreading *Proteus*, an *E. coli*, and a *Herellea* species. Eight of the nine pathogens were isolated from catheter tips that were in the vein more than 48 hours.

Three of the eight cutdown catheters had pathogens isolated from the catheter tip. One of these catheters grew enterococcus and *Herellea* and one tip revealed a very heavy growth of *E. coli*. All three patients were on broad spectrum antibiotics at the time of the indwelling venous catheter. A patient who was receiving cephalothin and prednisone yielded *Candida albicans* from his cutdown catheter. Actually, this was the only patient of the eight receiving steroids who revealed a pathogen on the skin site or the catheter tip.

One patient whose culture revealed a penicillin resistant *Staphylococcus aureus* at the

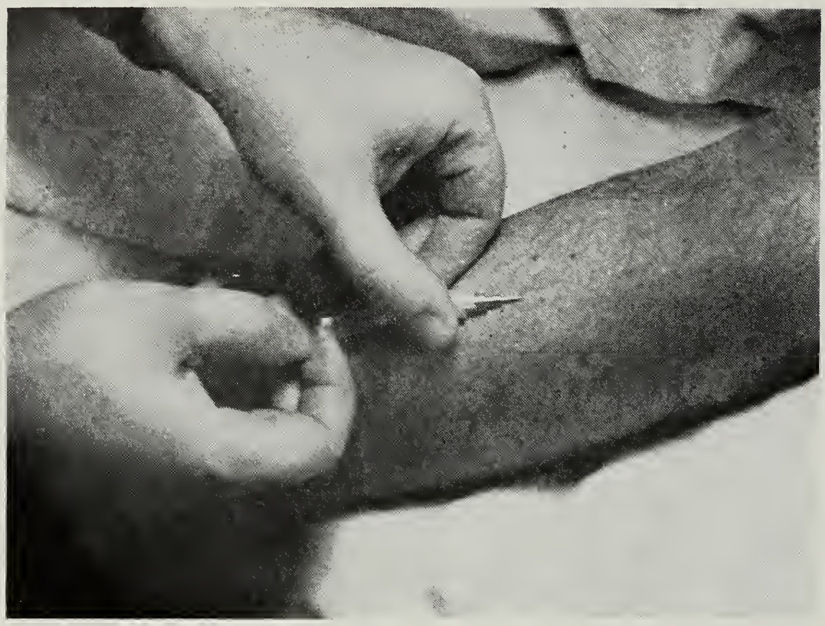

Figure 3

Percutaneous placement of catheter into vein through needle at which time catheter is threaded into vein.

skin site and catheter tip, subsequently developed a staphylococcal septicemia, three weeks after the infected venous catheter was removed. The phage type of both organisms was the same. In the interim, another venous catheter tip from the same patient revealed a spreading *Proteus*. The septicemia was successfully treated with intravenous cephalothin and kanamycin.

The other patient with a culture positive for *Staphylococcus aureus* from the catheter was a young diabetic who had a history of frequent hospital admissions. She also had a penicillin-resistant organism though she was not currently receiving antibiotics.

One patient who received ampicillin followed by a course of cephalothin demonstrated an enterococcus in his catheter culture which was sensitive to both of these antibiotics by the agar-disc diffusion technique. A similar incident occurred in a patient who received intravenous cephalothin for a staphyloccal septicemia, yet his cutdown catheter revealed enterococcus that was also sensitive to cephalothin.

Discussion

In 1951, Bonner[6] described the use of the indwelling femoral vein catheter for prolonged use of fluid administration. The incidence of thrombosis and embolic phenomena was stated to be low and the procedure was felt to be safe and effective. This procedure is useful because it is an efficient means of administering intravenous fluids to seriously ill patients in whom peripheral veins soon become unusable. Many devices are now available to facilitate the cannulation of a vein; perhaps the most common is that by which a venepuncture is made with a large bore needle and a polyethylene catheter is then threaded into the vein (see photos). Various modifications of this prototype have been made, yet the principle is the same. Otherwise, direct cannulation of the vein after location through a surgical incision, must be done (the so-called "cutdown"). Today the practice of using central venous pressure catheters and cardiac pacing catheters also adds to the number of these devices in use.

With the increasing interest in nosocomial infection in recent years, these devices have been regarded with suspicion by many investigators. In 1967, Smits and Freedman[1] surveyed all patients with positive blood cultures at the Yale-New Haven Hospital during a seven month period. Nine percent of these infections were attributed to indwelling venous catheters. In their opinion, it was the single most common cause of septicemia at that hospital during that particular time period. It was also their feeling that the

TABLE 1

DURATION IN VEIN

	Total	48 Hr. or Less	Greater than 48 Hr.
Overall	71	—	—
Cutdown	8	0	8
Percutaneous	63	34	29
I. V. Team	54	30	24
Non I. V. Team	9	4	5

chance of such complications was much higher if the catheter were in the vein more than 48 hours; in fact, in all of their cases, the catheters were in place more than 48 hours.

During that same year, venous catheters were identified as contributing to a group of nosocomial wound infections at Boston City Hospital by Barrett et al.[7] In both of these studies *Staphylococcus aureus* and the *Klebsiella-Enterobacter* group were the most common organisms isolated from blood and/or wound.

Early in 1968, two startling reports came from St. Vincents Hospital in Worcester, Massachusetts. Morse and others[2,4] reported that cases of septicemia could be traced to contaminated hand cream from which nursing personnel carried gram-negative organisms to patients and their venous catheters. In one study, six out of 13 patients in the intensive care unit with indwelling venous catheters developed septicemia due to *Klebsiella pneumoniae* and cultures of their catheters yielded these same organisms.

Is there any premonitory sign that will tell us when to remove the catheter from the vein in order to avoid these complications? Evidence of clinical phlebitis has been reported in two studies[8,9] as a reliable sign that thrombotic or septic complications may be close at hand. In one of these studies, Bogen[8] states that the limit of 48 hours for a catheter to be in place is most important since the incidence of phlebitis was greatly increased after this period.

TABLE 2

INCIDENCE OF CLINICAL PHLEBITIS

	48 Hr. or Less	Greater than 48 Hr.
Percutaneous catheters (overall)	20.5%	44%
Percutaneous catheters (I. V. Team)	17%	45%
Percutaneous catheters (Non-I. V. Team)	50% (2 of 4)	40% (2 of 5)
Cutdown catheters	—	28% (2 of 7)

The patients in our present study were selected because of the increasing frequency with which indwelling venous catheters are used in this hospital particularly in the intensive care unit. Most of the catheters are placed by the I.V. team, while the remainder are inserted by other nurses or by physicians, under varying and sometimes adverse conditions. The I.V. team skin preparation prior to percutaneous placement of venous catheters is identical to that used for blood culturing at this hospital. In other instances, the skin is usually prepared with one or two gauze sponges soaked in 70% isopropyl alcohol. The usual preparation before a cutdown is to wipe the skin briskly with a few cotton sponges soaked in tincture of benzalkonium chloride.

Since 86% of the percutaneous venous catheters were placed by the I. V. team, a comparison of this incidence of complications with this skin preparation to other preparations used at this hospital is not entirely valid. However, there are differences to be noted. The incidence of clinical phlebitis in the 48 hour or less group was reduced from 50% to 17% using the I. V. team skin prep (Table 2). However, this did not seem to make any difference if the catheter was in place more than 48 hours (45% incidence of phlebitis).

In considering the incidence of isolation of pathogenic organisms from the skin site and/or catheter tip, the incidence for the I.V. team-placed venous catheters was seven out of 54 (12.4%) compared to two out of nine (22%) for those not placed by the I.V. team.

TABLE 3

RELATIONSHIP OF CULTURE RESULTS TO USE OF ANTIBIOTICS

	Less than 48 Hr.	Greater than 48 Hr.	Cutdown	Overall
Broad spectrum antibiotics	17 of 34 (50%)	14 of 29 (48%)	all (100%)	39 of 71 (55%)
On broad spectrum antibiotics and *no* growth on catheter	17 of 17 (100%)	11 of 14 (78%)	4 of 8 (50%)	32 of 39 (82%)
On broad spectrum antibiotics and pathogenic growth on skin and/or catheter	1 of 17 (6%)	3 of 14 (21%)	3 of 8 (38%)	7 of 39 (18%)
Patients receiving no antibiotics: pathogens on skin and/or catheter	2 of 18 (11%)	3 of 14 (21%)	——	3 of 32 (9.3%)

In this respect, the I.V. team skin preparation did seem to have definite value.

The use of steroids at the time of indwelling venous catheterization did not seem to increase the incidence of infection, since only one out of eight revealed a pathogen in the catheter (*Candida albicans*), and this patient was also receiving a broad spectrum antibiotic. The concomitant use of broad spectrum antibiotics did seem to influence this complication, since four of the eight cases that yielded pathogens on catheter tips were receiving such drugs.

In regard to the two patients mentioned earlier in whom the organisms isolated from the catheter were sensitive to the antibiotics the patients were receiving, it should be noted that the intravascular catheter may decrease local host resistance and harbor bacteria in a protective thrombus or in a microscopic defect in the wall of the catheter itself. Thus even high serum levels of antibiotics may have no effect on the sensitive organism.

The importance of the 48 hour time limit for a catheter to be in the vein was supported by this study since incidence of clinical phlebitis more than doubled and seven of the eight catheters yielded pathogens, when they were in the vein more than 48 hours.

In 1965, Moran[10] studied the feasibility of applying an antibiotic ointment at the catheter-skin site. He showed a surprising decrease in the incidence of infection in those catheters in place over 48 hours when the ointment was applied at the time of insertion, and the site cleansed and new ointment re-applied daily. Others have also suggested that this procedure may be of some benefit.[1] This particular preventive measure was not studied in our cases, yet it would seem to be of benefit especially in those cases in open wards and where frequent manipulation of the intravenous apparatus is necessary, eg: frequent injection through the I.V. tubing, etc.

The significance of non-pathogenic bacteria on the catheter tip culture is not clear at the present time. The majority of these organisms were coagulase-negative staphylococci and *Bacillus* species. It could be postulated that this represents contamination of the catheter as it is being withdrawn through the cleansed skin. In 11 cases, the same organism was cultured from skin site and catheter tip, perhaps suggesting the possibility of contami-

TABLE 4

PATIENTS WITH PATHOGENS ISOLATED (SKIN AND/OR CATHETER)

Percutaneous by I. V. Team	7 of 54	(12.9%)
Percutaneous by others	2 of 9	(22.2%) *
On broad spectrum antibiotics (overall)	7 of 39	(18.0%) **
On corticosteroids	1 of 8	(12.5%) ***

* All greater than 48 hr. duration

** All but one greater than 48 hr. duration

*** Patient also receiving a broad spectrum antibiotic

nation in some cases. In 15 cases, however, growth occurred only from the skin and not the catheter tip arguing against frequent contamination.

The presence of coagulase-negative staphylococci on the catheter tip was not reported to the physician unless the patient demonstrated clinical evidence of infection that was not otherwise explained. Four of the 12 patients with non-pathogenic organisms cultured from the catheter or both the skin and the catheter were receiving antibiotics and one was also receiving steroids.

The sites of other infections in the patients in this study were limited to urinary tract infection (indwelling urethral catheters), pulmonary infection and surgical wound infection but no correlation could be established between these infections and the organisms cultured from the venous catheters.

Conclusions

The results of this study agree with the previously mentioned work with regards to the 48 hour time limit and the bacteriologic findings. It is the opinion of the author that stainless steel needles should be used for the intravenous infusion of fluids whenever possible. Often those of the scalp vein-type can be stabilized well enough to be of use more than 48 hours without becoming dislodged. If plastic venous catheters must be used, very careful skin cleansing (utilizing tincture of iodine and 70% alcohol) may help decrease the incidence of phlebitis and infection. Careful anchoring of the catheter to the skin to avoid passage of contaminated portions of the catheter into the wound also seems necessary.

TABLE 5

BACTERIOLOGY (NUMBER OF ISOLATES)

SKIN		CATHETER	
Coagulase negative Staphylococcus	20	Coagulase negative Staphylococcus	11
Bacillus species	5	Enterococcus	3
Saphrophytic yeast	3	Saprophytic yeast	2
Diphtheroids	2	Bacillus species	2
Coagulase-positive Staphylococcus	2	Coagulase-positive Staphylococcus	2
Enterococcus	2	Spreading proteus	1
Alcaligenes	1	Herellea	1
Clostridium perfringens	1	*E. coli*	1
Streptococcus viridans	1	*Candida albicans*	1
Spreading proteus	1		
Candida albicans	1		

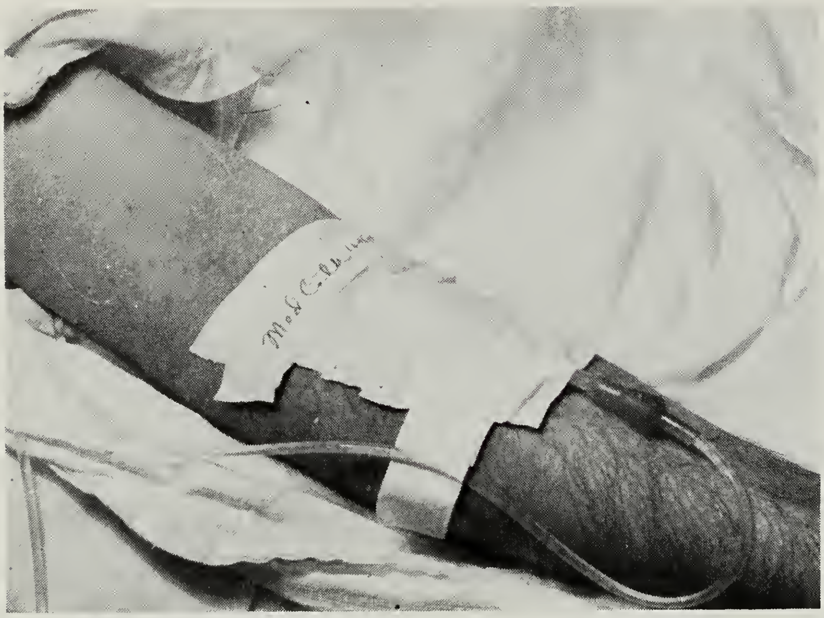

Figure 4

Final dressing protecting the catheter—skin junction site.

Antimicrobial ointment applied at the skin site was not evaluated in this study, but the results of others indicate that it might be a useful procedure. A 48-hour time limit for each venous catheter and avoidance of frequent manipulation should decrease the incidence of infection.

We were not able to demonstrate that the concomitant use of antibiotics has any marked adverse effect in the development of complications and actually may help to prevent infections in patients with the catheter in place less than 48 hours. Because such foreign bodies as catheters definitely decrease local host resistance, they should be removed and cultured if the patient shows any evidence of sepsis.

ACKNOWLEDGMENT

The author is grateful for the assistance of William J. Holloway, M.D., Director, Infectious Disease Research Laboratory; Mr. E. G. Scott, M.S., Director of Microbiology, and Miss F. Becker, R. N., Members of the I. V. Team, Wilmington Medical Center.

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WHY AND HOW

Every medical occurrence — failure or success — is potentially a valid basis for published discussion. The application of hypothesis to practical situations and the reporting of results constitute a living mirror in which the alert physician evaluates his work.

Doctors write not only to exchange their experience with others, but also to stimulate their own growth.

To write well is difficult. It cannot be achieved without trial and practice. If you wait until you have something worldshaking to say, you are not likely to say it well when that moment comes. The ability to communicate is abetted by the event — not always comforting — of seeing one's work in print.

The Medical Article: *"Why and How,"* Ruth Straus, *Kaiser Foundation Medical Bulletin.*

THE EFFECTS OF AIR POLLUTION ON HEALTH

• Scientific evidence suggests that the levels of air pollution seen in our cities may well be responsible for the aggravation, if not causation, of certain diseases. The studies reviewed in this article are of importance to clinicians, basic scientists and public health officials.

Stephen M. Ayres, M.D.

Medicine and law, two of the oldest and most respected professions, have always enjoyed an extremely close relationship. The rapid scientific progress of modern medicine has made it increasingly difficult for attorneys and judges to adequately understand the technical problems presented to them. Unfortunately, however, the constitutional rights of both plaintiff and defendant force the courts to make decisions even before medical scientists can agree on the interpretation of their own data. The tobacco and health controversy, for example, has been occupying the attention of medical scientists for the past several decades. Although medical experts disagree on the interpretation of the tobacco-health data, a lawsuit initiated by the survivors of a heavy smoker who died of lung cancer forced the court to determine the liability of the tobacco company manufacturing the cigarettes enjoyed by the patient for forty years. Perhaps the more pragmatic legal profession serves as a balance to the more theoretically oriented medical scientists.

There is little doubt that legal precedent has been established for the protection of those injured by certain air pollutants. Coal miners exposed to silica or workers in asbestos factories are protected by workmen's compensation laws if they should develop silicosis or asbestosis.

A physician testifying as an expert witness is frequently asked whether it has been proven that "A" is a cause of "B" or, more specifically, that air pollution is a cause of lung disease. What does the scientist regard as conclusive evidence of cause and effect? Scientific proof is based on the science of statistics and probability. If height and intelligence were studied in a number of groups, it might be found that in certain groups the shortest might be the most intelligent. If 100 groups were studied, it might be found that no correlation existed; while in three groups the tallest were the most intelligent. The scientists would then conclude that there was statistical evidence that a correlation did not exist. Ninety-five percent of the time no correlation existed. The probability figure of 95% is considered the level of significance for most biologic studies.

In law, the word "reasonable" is substituted for a probability value. If the jury decides that cause and effect exist beyond a reasonable doubt, it then is said to exist. Is there good statistical evidence that air pollution produces lung disease? Evidence supporting this contention has been gathered over the past twenty years. It is the purpose of this paper to demonstrate the relationship between air pollution and health. One cannot systematically expose large populations to air pollutants in order to test the hypothesis. But since the evidence is close to the 95% level of probability, the government must adopt the role of the "prudent man" and take all possible measures to decrease urban air pollution.

Dr. Ayres is Director, Cardio-Pulmonary Laboratory, St. Vincents Hospital and Medical Center, New York City, New York.

Adapted from an address given by Dr. Ayers in Wilmington, March, 1968, sponsored by the Delaware Citizens for Clean Air and the Delaware Tuberculosis and Health Society.

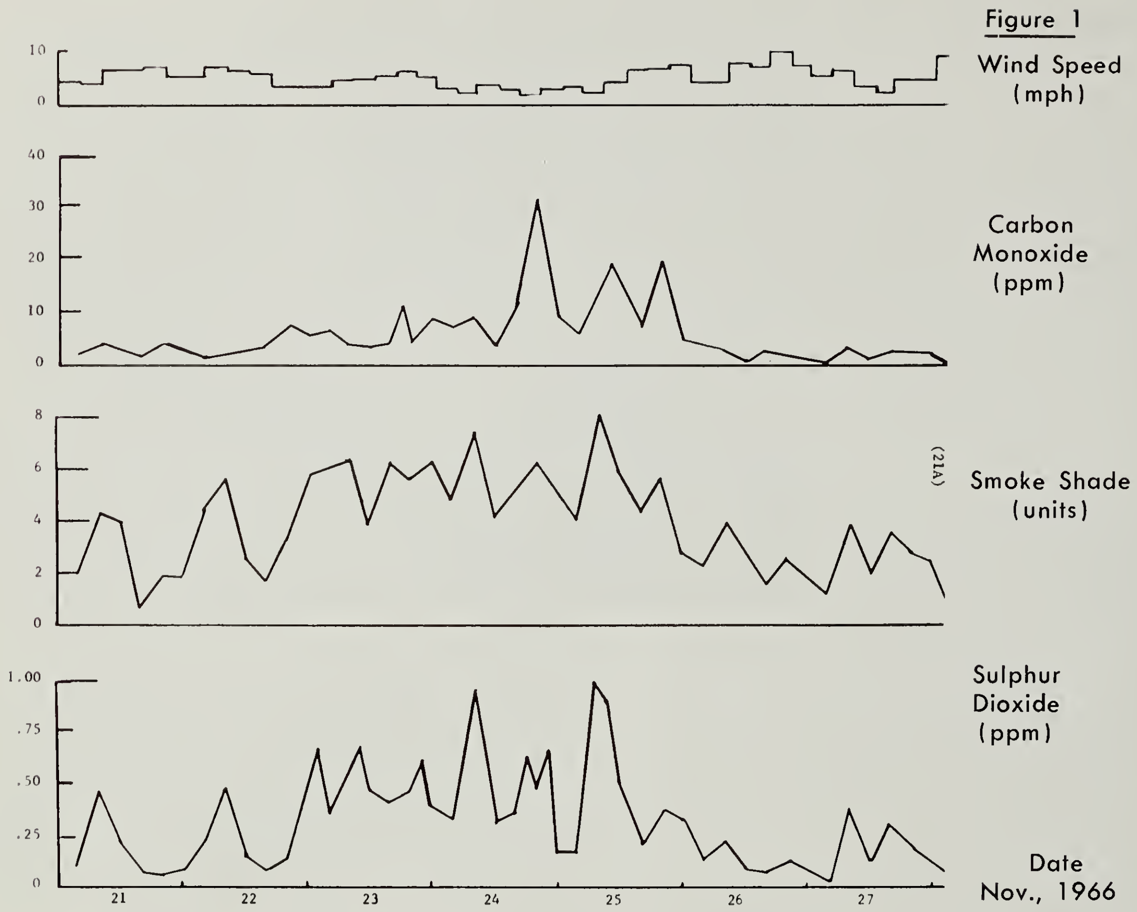


Figure 1

The Impact of Air Pollutants on Man

Anatomic and Physiologic Considerations: The tracheobronchial tree connects the exterior world to the alveoli. This intimate communication between atmosphere and tissue has the disadvantage of exposing the inner tissues to any contaminants that may be suspended in atmospheric air.

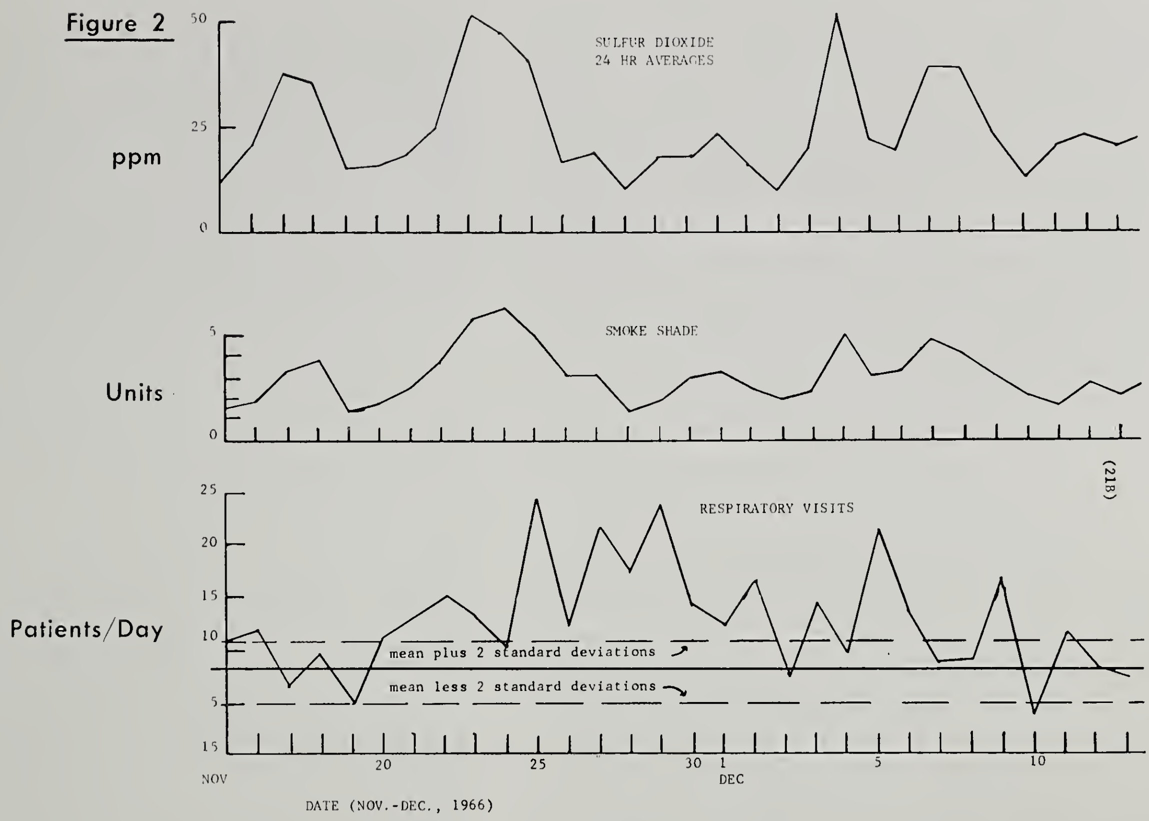
Two defense mechanisms attempt to protect the lungs and other organs from the onslaught of polluted air. The cells lining the tracheobronchial tree are of two types; one type produces mucous while the other bears a small hairlike projection termed a cilia. A mucous "carpet" thus lines the airway and is propelled towards the mouth by the rapidly beating cilia. Pollutant particles may be cleared by this mechanism or may overwhelm the muco-ciliary carpet, deposit in the alveoli, and pass through lymphatic ducts to areas surrounding the tracheobronchial tree. Once in the lung, they remain forever unless cleared by the muco-ciliary apparatus.

The second defensive mechanism is a total rejection of the pollutant particle by clamping down the airway. The tracheobronchial tree contains muscle which contracts when faced with high concentrations of pollutants. While this narrowing of the airway, technically known as bronchoconstriction, does keep pollutants from the lung, it also prevents oxygen from entering the alveoli and quickly makes the subject uncomfortable. Such bronchoconstriction is the basis for the wheezing and uncomfortable breathing seen with bronchial asthma.

Classification of Lung Diseases

Three chronic lung diseases may be either caused or aggravated by exposure to polluted air. *Bronchial asthma* is caused by inhalation of certain particles such as plant pollens which produce an allergic reaction and lead to bronchial constriction. An asthma-like illness is produced by exposure to environmental irritants (Tokyo-Yokohama Asthma as described below). *Chronic bronchitis* results

Figure 2



from constant irritation of the tracheobronchial tree with destruction of cilia and production of mucous. The diagnosis is generally made when cough and sputum production persist for more than six weeks on several occasions. *Chronic obstructive emphysema* usually follows many years of chronic bronchitis. Actual destruction of alveolar tissue is superimposed on the bronchial irritation interfering with normal respiration and producing the symptom of shortness of breath.

Extent of Urban Air Pollution

The atmosphere formerly contained oxygen, nitrogen, water vapor and a small amount of carbon dioxide and certain rare gasses such as argon and neon. One of the results of the industrial revolution has been to add such substances as sulfur dioxide, soot particles, carbon monoxide, ozone, nitrogen oxides, hydrocarbons and many other contaminants to our air. Although it is necessary to measure the levels of a great number of pollutants to assess the total burden of air pollution, it is convenient to select several as sample substances. These have been studied intensively and provide a profile of the total pollution impact. Sulfur dioxide is produced by the combustion of all fossil fuel; it exists in concentrations several times those declared safe by the Public Health Service. Soot particels are produced by fuel combustion and the incineration of garbage. Carbon monoxide, produced primarily by automobile exhaust, exists in extremely high concentrations in congested areas. While all three pollutants are generally high in urban air, peaks of pollutant concentration are seen during certain weather situations. When a thermal inversion prevents vertical mixing and low wind speeds prevent lateral dilution, pollutants accumulate and may produce serious health effects.

Pathologic studies of human lungs demonstrate the impact of air pollution on man. The lungs of country dwellers and of small children in the city are pink. Carbon particles accumulate in the lungs of city dwellers producing the characteristic "black lung" seen at autopsy.

Epidemiology of Air Pollution

Epidemiologic studies have demonstrated that both acute exposure to high concentrations and chronic exposure to low concentrations of pollutants may produce lung problems.

Certain acute air pollution disasters have captured public attention. Such disasters were present in the Meuse River Valley in Belgium (December, 1930); Donora, Pennsylvania (October, 1948); London (December, 1952 and 1956); and in New York City (November, 1953). The worst disaster in terms of death was the great London Smog of 1952 in which 4000 people died. New York City episodes have been less severe although every two to three years such an episode accounts for fifty to one hundred deaths.

A number of studies testify to the sorry fact that city dwellers die more frequently from respiratory complaints than their country cousins. An important study recently completed by Winkelstein and associates demonstrated that residents of high pollution areas in Buffalo had a significantly higher death rate from respiratory disease than those living in low pollution areas. Greenburg has recently demonstrated a higher death rate from lung cancer in those living in the northern high pollution area of Staten Island compared to those living in the southern rural part of the island.

Studies of illness rates are important since they analyze the health effects on those not succumbing to the effects of air pollution. A beautifully designed English study reported by Holland demonstrated the effects of both smoking and urban air pollution on a large population. A detailed medical history was obtained and pulmonary function studies performed on both city and country residents. The highest incidence of cough and sputum production, and the poorest pulmonary function was found in the city dweller who smoked. In contrast, the lowest incidence of symptoms and the best pulmonary function studies were observed in non-smoking country residents. Studies of this type are extremely important in revealing the combined impact of smoking and air pollution on the lung.

We have studied the frequency with which patients attend a hospital emergency room complaining of respiratory difficulty and attempted to correlate this with daily concentrations of sulfur dioxide and particulate material. A consistent correlation was observed with both pollutants but the best relationship was noted between respiratory illness and particulate concentration three days earlier suggesting a lag period before the development of pulmonary symptomatology.

Correlation studies are statistical devices by which the epidemiologist attempts to relate illness rates to air pollution levels and thereby establish cause and effect. Perhaps the most striking correlative study is that of Dohan and associates who studied the absentee rate from respiratory illnesses lasting more than seven days in five RCA plants through the United States. A "straight line" relationship was observed between absentee rate and level of air pollution expressed as sulfate concentrations, the highest illness rate and pollution levels being observed in Harrison, New Jersey. He observed a correlation coefficient of 0.964 between these two variables implying almost perfect correlation. Such levels of correlation are rarely found in biologic experiments and suggest cause and effect between pollution levels and respiratory illness.

Thanksgiving Day Smog

Atmospheric inversions present an experimental situation in which the investigator can study the relationship between pollutant levels and respiratory illness. Thanksgiving week, 1966, meteorologic conditions were such that pollutant levels rose to dangerous levels. Both a thermal inversion and low wind speeds (anticyclonic conditions) reduced vertical and lateral mixing to a minimum. Figure 1 demonstrates that sulfur dioxide and particulate concentration began to rise on November 23. The Commissioner of Air Pollution Control of the City of New York requested that all incineration of garbage be discontinued, space heating be reduced, and power plants shift from residual oil to natural gas for power production. These measures were instituted and pollutant concentrations the following day did not rise inspite of continued anti-cyclonic conditions, indicating the partial success of these measures. Thanksgiving Day, November 24, encouraged large numbers of suburbanites to drive to New York City resulting in late afternoon traffic congestion and a resultant high level of carbon monoxide. The recorded high of 35 parts per million of carbon monoxide was probably an underestimate of street level concentrations since levels in traffic may be several hundred times those recorded in the air pollution laboratory.

Fortunately, weather conditions changed and by November 26, increased wind speeds diluted pollutants and lowered concentrations to usual levels. The health impact of this brief period of anti-cyclonic conditions may be seen in morbidity and mortality studies. Figure 2 demonstrates the significant rise in illness rates which occurred and again shows the correlation between respiratory illness and particulate concentrations. Similar studies performed by Greenburg showed that an average of 20 excess deaths were observed each day. Our data, together with the mortality data compiled by Greenburg, suggests that the Thanksgiving Day Smog probably made several thousand New Yorkers ill and contributed to the death of at least one hundred of that group.

Why are certain smog episodes "killer" smogs while others produce relatively few health effects? Not only the levels of pollutants but the duration of the episode and certain weather conditions determine the toxicity of a given thermal inversion. The Thanksgiving Day Smog was relatively mild as pollution episodes go because it was of short duration and the weather was warm, the air dry. Similar concentrations of pollutants occurring in Great Britain have been considerably more harmful because of the presence of cold, damp air. The combination of pollution, high humidity and cold conspire to produce a "killer" smog.

New Diseases Directly Related to Air Pollution

Emphysema, bronchitis and asthma are not new diseases but are aggravated or precipitated by air pollution. In certain areas, the incidence of respiratory disease is so great that the appearance of a new variety of illness is suspected. American servicemen assigned to the Tokyo-Yokohama basin, for example, frequently develop cough, mucous production and wheezing. Japanese living in the area suffer from a high incidence of chronic bronchitis and emphysema. The subject of intensive epidemiologic studies, this condition is believed to represent an illness directly caused by air pollution and has been termed "Tokyo-Yokohama" asthma. Similar high incidence rates of acute respiratory disease have been observed in New Orleans and New York City.

Physiologic Studies

An understanding of the mechanism by which air pollution produces respiratory illness is gained by physiologic investigations which study the effects of pollutants on the tracheobronchial tree. Both effects on cilia and on airway resistance have been performed.

Respiratory disease and exposure to irritant substances produce a narrowing of the tracheobronchial tree and a rise in airway resistance. A number of studies have been performed on both humans and experimental animals in which the subject is deliberately exposed to controlled amounts of various pollutant substances. While sulfur dioxide increased airway resistance at concentrations as low as 0.2 ppm (a level frequently observed in New York City air), sulfuric acid and the salts of sulfuric acid (zinc-ammonium sulfate) were many times as potent. Water vapor particles alone had little effect on airway resistance but when administered in combination with sulfur dioxide, an enhanced effect was seen which was greater than that of sulfur dioxide alone. Of importance, this enhancement was only observed when the water particles were extremely small. The larger the particles, the less the effect, presumably because the larger particles did not reach the distal branches of the tracheobronchial tree. This enhanced effect with water vapor explains the increased mortality observed with natural air pollution and high humidity.

We have conducted exposure studies on human subjects with normal lungs or with either bronchitis, asthma or emphysema. The variation in response is great in all groups but the asthmatics demonstrate the greatest amount of bronchoconstriction when exposed to sulfur dioxide. This variability between individuals explains why certain individuals become ill during a thermal inversion while others remain asymptomatic. Presumably, certain individual differences in the airway and its mucous lining render some subjects much more susceptible to the irritant effects of pollutants.

Other physiologic studies have been performed on the muco-ciliary mechanism either by direct observation of the cilia through a microscope or by studying the clearance rate of inhaled particles from the lung. These investigations have demonstrated that small amounts of pollutants including tobacco smoke inhibit the cleansing action of the muco-ciliary apparatus.

Carbon Monoxide

The irritant pollutants discussed thus far have the common effect of injuring the lining of the tracheo-bronchial tree and producing cough and sputum production. Carbon monoxide has a totally different effect on the body and may become the greatest pollution problem of the twentieth century. Produced almost entirely by the internal combustion engine, it reaches high peak concentrations in congested traffic. Control techniques are difficult because they require either the development of non-combustion engines such as the electric automobile or the installation of effective muffler filtration systems. Neither is technically feasible today.

The sole toxic effect of carbon monoxide is to combine with hemoglobin. While carbon monoxide combines rapidly with hemoglobin (hemoglobin has about 200 times the avidity for carbon monoxide that it has for oxygen), the reverse process is extremely slow. An individual exposed to a high concentration of carbon monoxide will immediately absorb large amounts of the toxic gas; it will take about four hours for fifty percent of the absorbed gas to be eliminated by the body.

Exposure to 50 ppm of carbon monoxide for two hours leads to inactivation of five percent of the total body hemoglobin by the pollutant (5% carboxyhemoglobin). Concentrations of carbon monoxide in city air, in tunnels and in traffic concentrations have been observed to reach as high as 300 ppm causing blood carboxyhemoglobin levels up to 15%.

We have recently studied the effects of carboxyhemoglobin on the heart by administering small amounts of carbon monoxide and observing the function of the heart muscle. As little as 5% carboxyhemoglobin interferes with oxygen delivery to the heart muscle and produces serious effects in patients with coronary artery disease. Small amounts of carbon monoxide are thus particularly toxic to individuals with pre-existing heart disease. A patient recovering from a myocardial infarction, for example, might well suffer a recurrence if trapped in New York City traffic for several hours.

Small amounts of carbon monoxide have also been observed to seriously interfere with mental function. Police in city traffic and the drivers of automobiles may experience loss of quick reflex ability and a general dulling of the intellect. Certain unexplained traffic accidents may well be caused by carbon monoxide toxicity.

Summary

The scientific evidence summarized in this paper indicates that present levels of air pollution may seriously impair health. Since air pollution is escalating, health effects from pollution will also escalate. Most observers agree that air pollution causes disease and death, although there is little agreement as to the precise correlation between pollutant levels and health effects. Rather than quibble over the concentration of sulfur dioxide necessary to kill an individual, members of a prudent society must band together and develop acceptable techniques of pollution control. A partnership among scientists, engineers, lawyers, government officials and the body politic in general is necessary in order to correlate and harmonize the sociologic, economic and scientific aspects of urban air pollution, and in order to do something about them.

CASE REPORT ON CHRONIC LYMPHATIC LEUKEMIA

With Auto-immune Hemolytic Anemia

• The auto-immune hemolytic anemias have recently been receiving a good bit of attention in the medical literature. The following article briefly describes a well-documented case of this type of anemia. There is a brief discussion as to the mechanism of the disease as well as the treatment.

Charles Allen, M.D.

This 63-year-old white married male clerk was admitted to the hospital because of generalized weakness and easy fatiguability. He was in excellent general health until three months prior to his referral to the hospital, at which time, he noted a painful, swollen foot following a trivial injury. At the time he was seen by his family physician, and it was noted that he was somewhat pale, although this was not further investigated. Approximately ten days prior to admission, the patient consulted his family physician because of easy fatiguability following a weekend trip to Virginia. At this time, he looked still more pale, a hemoglobin was found to be 6.5 gm% and a white blood count was 38,000 with 94 per cent lymphocytes. For this reason, he was admitted to the hospital.

History

His past history revealed that he had had the usual childhood illnesses without sequelae. His only previous hospitalization was as a youngster when he had a tonsillectomy. Family history revealed that his mother died shortly after childbirth of an unknown cause; his father lived to age 91, dying of generalized arteriosclerosis; his only son was living and well. The only other positive family history was that one cousin had diabetes mellitus. Social history revealed that he did not drink or smoke. His work had always been clerical with no contact with toxic agents or irradiation. His review of systems revealed that, in general, he was in excellent health until the onset of the present illness. There were recent changes in his skin as noted by his family physician and his wife as a "sallow complexion." He had not had any chronic upper respiratory infections, change in special senses, recurrent headaches, or other signs referable to the head. There was no swelling in the neck or thyroid enlargement ever noted by the patient. He had no shortness of breath, cough, chest pain, hemoptysis, past history of pneumonia, tuberculosis, pleurisy, asthma. or other respiratory diseases. There was no past history of rheumatic fever, hypertension, heart murmur, ankle edema, orthopnea, paroxysmal nocturnal dyspnea, or other cardiac complaints. GI: revealed that his appetite had been good; no food intolerances, change in bowel habits, melena, hematemasis, or abdominal pain. GU: no nocturia, dysuria, pyuria, hematuria, urgency, frequency, hesitancy, past history of cystitis, pyelitis, or other genitourinary complaints. Locomotor: no rheumatism, or arthritis other than his injured foot, mentioned above, during the present illness. Neuro-psychiatric: there had been no episodes of syncope, lightheadedness, convulsions, or paralysis, and no psychiatric illness ever noted by the patient.

Physical Examination

On admission physical examination revealed a well-developed, well-nourished rather pale white man in no acute distress; he was alert, oriented, and cooperative. Temperature on admission was 98.6F; pulse, 80; respirations,

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Dr. Allen is Consultant in Cardiology and Co-director of Intensive Care Unit at the Kent General Hospital, Dover, Delaware.

16; blood pressure, 140/74. Examination of the skin revealed a rather sallow, lemon-yellow pallor, but no icteric tinge was noted to the sclera. Eyes: conjunctiva, pale; sclera, white; pupils were round, regular, equal and reacted to light and accommodation; extraocular movements, good; funduscopic examination, minimal arteriosclerotic changes in the fundi, but no hemorrhages or exudates noted. Ears: canals, clear; eardrums, intact; no signs of acute or chronic infection. Mouth: edentulous with both upper and lower dentures; tongue and buccal mucosa appeared pale, but there were no lesions in the oral mucosa. Throat: clear with no signs of acute or chronic infection. Tonsils, surgically absent. Neck: supple; no thyroid enlargement or lymphadenopathy noted; both carotids pulsed well, and there was no venous engorgement. Chest: good diaphragmatic movements. Lungs were clear to percussion and auscultation. Heart was not enlarged to percussion; heart sounds were of good quality; regular rhythm at a rate of 80 per minute, and no murmurs noted. Abdomen was soft and nontender; in the left upper quadrant, the spleen was felt enlarged three fingerbreadths below the left costal margin; it was not tender. The liver was not palpated nor were any other organs or masses. Genitalia: normal adult male with a left indirect inguinal hernia present. Lymphatic system revealed no lymphadenopathy in spite of careful search on several occasions. Blood vessels revealed good peripheral pulses; no varicose veins were noted. Locomotor: station and gait, normal; no signs of joint deformity or arthritis. Extremities revealed a trace of edema in the left ankle, but no evidence of calf tenderness or phlebitis. There was no clubbing or cyanosis noted. Neurologic examination: sensorium, clear; cranial nerves, intact; deep tendon reflexes, active and equal; no pathologic reflexes present; strength, good throughout; sensation to pin prick, light touch, vibration, and position were all within normal limits. Rectal examination revealed a slightly enlarged prostate, firm but not hard; no nodules were noted; rectum was negative for intrinsic lesions, and stool on the examining finger was soft brown; hematest, negative.

Laboratory Findings

Laboratory data on admission revealed a hemoglobin of 6.5 gm% with a hematocrit of 25 per cent; white blood count, 37,000; 91 per cent lymphocytes; seven segmented polymorphonuclear cells; two per cent stab cells. There were 200,000 platelets, and 7.7 per cent reticulocytes per 100 red blood cells were noted. Indices revealed MCV of 115; MCH, 35; MCHC, 30. Fasting blood sugar, 90 mg%; blood urea nitrogen, 16.5 mg%; transaminase, 17 units; alkaline phosphatase, 3 units; Van den Bergh, direct .2 mg%, indirect 1.0 mg%, total, 1.2 mg%. Urinalysis was completely within normal limits; VDRL was nonreactive; a direct Coomb's test was strongly positive. Red cell fragility was completely within normal limits when compared with the control. A bone marrow revealed a predominance of lymphocytes, mostly of the mature adult type, but it was noted that 40 per cent of the cells were considered normoblasts. This was interpreted as compatible with chronic lymphatic leukemia with very active bone marrow also present from the red blood cell series as well as the white cell series. X-ray of the chest revealed the heart to be normal sized; lungs were clear, and interpretation was a normal chest x-ray. X-ray of the left foot revealed no specific bony or joint abnormalities. EKG was within normal limits.

By the second day in the hospital, it was obvious that this patient had a chronic lymphatic leukemia, and with an elevated reticulocyte count and positive direct Coomb's test, it was assumed that he had auto-immune hemolytic anemia complicating this process. He was placed on prednisone, 40 milligrams per day as well as intermediate feedings and antacids in the form of Gelusil. Because the patient's only son was due to be married the next day, he was discharged after three days in the hospital to be followed closely at home. He was a particularly conscientious patient, following his instructions faithfully. Three weeks after discharge from the hospital, a hemoglobin was 9.5 grams and a hematocrit of 34 per cent; six weeks after discharge and still on 40 milligrams of prednisone a day, his hemoglobin rose to 12.7 gm% with a hematocrit of 42 per cent; his white blood count had reached 82,000 with 92 per cent adult lymphocytes. Over the next two years, his hemoglobin has ranged between 13 and 15 grams per cent and his white blood count from 35,000 to 80,000 always with a marked preponderance of adult type lymphocytes. A repeat reticulocyte count was 2.1 per cent; a repeat Van den Bergh had a negative direct acting and 1.4 milligrams per cent indirect acting one year after initiation of treatment. Eight weeks after the onset of prednisone therapy, the dosage was slowly reduced, and by six months after onset of therapy, he was on 10 milligrams of prednisone per day which has been his maintenance dosage to the present time. His direct Coomb's remained positive on two follow-up determinations.

The patient noted an almost immediate improvement on steroids, stating that within three weeks his strength was back to what he considered normal, and he has been totally and completely asymptomatic ever since. He still has no lymphadenopathy, and his spleen is still felt approximately three to four fingerbreadths below the left costal margin. He has, to date, received no specific therapy for his chronic lymphatic leukemia.

Discussion

This patient represents a severe anemia developing in an otherwise asymptomatic chronic lymphatic leukemia. The diagnosis of the lymphatic leukemia was rather obvious from his peripheral blood smear, but he had remarkably few other expected signs or symptoms of leukemia to answer such a severe anemia. The anemia of chronic lymphatic leukemia is usually due to one of four mechanisms; namely, blood loss, decreased erythropoiesis due to bone marrow infiltration with lymphocytes, a decrease in folic acid, and lastly, to hemolysis. This patient proved to have a hemolytic process which was of the Coomb's positive type. This process has been labeled "auto-immune hemolytic anemia" by most authors,[1–5] although Osgood has suggested the term "anti-globulin positive hemolytic anemia," which may be more accurate.[6]

That chronic lymphatic leukemia often produces abnormal proteins, particularly gamma globulin, has been well established. This would seem to indicate that the abnormal lymphocyte (or lymphocytic infiltrated spleen) produced this abnormal gamma globulin in much the same manner that the abnormal plasma cell of multiple myeloma produces the myeloma proteins.[2] The most current theory is that this abnormal protein (gamma globulin) coats the red cell. The coated red cells then agglutinate and in the presence of complement, hemolyze.[6,7] This then would not be a true antibody-antigen reaction in the sense of the red cell being an antigen causing the body to produce an antibody against itself, but would rather be a coating of the red cell, thus "setting it up" for hemolysis as an "abnormal" red cell. This is the reason for Osgood's re-naming the process.

Hemolysis can be the first symptom of chronic lymphatic leukemia as was demonstrated by the present patient. Prior therapy has been incriminated as a possible cause for auto-immune hemolytic anemia occurring in a dysglobulinemic state, and particularly irradiation is frequently blamed as an inducing agent.[3] However, Osgood in his series of 212 consecutive chronic lymphatic leukemias found 37 per cent had "anti-globulin positive hemolytic anemia" and that of these patients only one third had any previous therapy. Forty-five per cent of his series were actually aleukemic when presenting with hemolytic anemia.[6] This patient, of course, had not received any anti-leukemic therapy, and still has not during the past 2½ years. This would indicate at least in this individual case as well as several of Osgood's cases that the abnormal globulin production need not be triggered by x-ray or chemotherapy, but may be more controlled by the the type of individual cell which has undergone the "leukemic process." This would once again be similar to multiple myeloma where it has been shown that individual plasma cells produce individual abnormal myeloma proteins.

Keller has reported a patient with nine years survival after intensive corticosteroid therapy for chronic lymphatic leukemia and

Coomb's positive hemolytic anemia.[8] The therapy of choice in this condition is corticosteroids with splenectomy being tried only after steroids fail. Ideally, a splenectomy should be performed only after radioactive scanning procedures indicate sequestration within the spleen. [1,2,6,9,10] Irradiation of the spleen in one series was shown to be effective in five of eight cases so treated and in some patients with a marked tendency toward infection, irradiation of the spleen might be preferred to large doses of adreno-corticosteroids.[11] The use of steroids is limited mostly by this factor of a lowered resistance to infection occurring in a high percentage of patients with chronic lymphatic leukemia. Occasionally in the patient with rather severe hypogammaglobulinemia, injections of gamma globulin may be helpful in the management and prophylaxis of infections.[9] There have been reported cases of auto-immune hemolytic anemia in patients with chronic lymphatic leukemia and hypogammaglobulinemia with the obvious inference that the gamma globulin produced, besides being less than normal in amount, is also abnormal in quality.

The length of corticosteroid therapy is dictated by the response of the patient, but patients have been carried four years on low-dosage maintenance of steroids without untoward side effects.[10] Therapy with alkalating agents should be reserved for patients with a combination of myelophthisic anemia as well as hemolysis, as the alkalating agents do seem to increase the risk of hemolysis and to possibly reduce the ability of the bone marrow to produce red blood cells in response to the body's needs during active hemolysis. If the systemic manifestations are such that antileukemic agents are necessary, one should always search first for hemolysis and consider adding adreno-corticosteroids to the therapeutic regime in the individual patient.

In summary then, this is a case of "antiglobulin positive hemolytic anemia" found as the presenting and only clinically significant finding in a patient with chronic lymphatic leukemia. Therapy has been limited to the corticosteroids with a very satisfactory result. This man has not missed any time from work and is currently living a full and completely normal life 2½ years after the diagnosis of his lymphatic leukemia. He still has the laboratory studies compatible with chronic lymphatic leukemia, but has no anemia and has not suffered any side effects from long-term low dosage steroid therapy. He has not required blood transfusions which would have added to the hazards of his chronic disease, nor has he required to date any therapy for his leukemic process.

ACKNOWLEDGEMENT

I wish to thank Dr. J. Stites McDaniel of Dover for referring this patient to me and for allowing me to follow the clinical course with him.

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SCOT WISDOM

The Scots in their telluric wisdom have 69 reasons why you should drink whiskey and the sixty-ninth is that it won't do you any harm anyway. Now it seems a seventieth reason may be added. It has been found that judicious use of alcohol can delay the onset of premature labor for from one to eight weeks. The alcohol is given intravenously until uterine contractions quiet down and then is continued orally. This technic has proved significantly useful with no ill effects among 100 cases at one maternity center and is now having wider trial. *New York State Journal of Medicine, April 15, 1968*

POINTS ABOUT JOINTS

PART IV

(Last of Four Parts)

Irvine M. Flinn, Jr., M.D.

Infections

The problem of infection (always a fearsome condition, but especially in orthopedics) has assumed an unusual aspect in recent years. It used to be before the 1940's that a streptococcus infection was feared much more than staphylococcus. The main reason for this was because it was blood borne and therefore spread much more quickly than staphylococcus. With staphylococcus if we could obtain an abscess (or bring "a boil to a head"), we would soon have a well patient. In osteomyelitis the hoped-for organism was therefore staphylococcus. Now, things have changed. The formerly more dangerous bacteria are more easily controlled but there stands that specter that causes the stoutest hearts to shudder — *positive staph.* Really now, it is not that bad. We also formerly had deaths from staphylococcus pneumonia and on occasion an uncontrollable staph infection, but these were a rarity. I see no reason to get upset, and I see no reason to fear an epidemic of staphylococcus because a few won't respond to antibiotics. Somebody will find some more effective molds soon.

Not so long ago, a doctor friend of mine came home to find his son-in-law taking a shower in the doctor's home. His son-in-law said, "I have just been in the hospital seeing Jimmy (a son) and I thought I had better stop in here to bathe. I don't want to give Jim's staph to Bill (another son)." Is the whole populace that frightened about staphylococcus? From the standpoint of teaching, let's go back and relearn Orr's treatment, Truetta's experiences in the Spanish Civil War, skin grafts and the secondary closure in World War II, and then read Zadek's description of adult osteomyelitis.

Adhesive Plaster

Adhesive plaster is one of the most valuable tools that the orthopedic surgeon has. Unfortunately, a fair number of people are sensative to it and therefore care must be taken in its application. Mercurochrome is fairly good underneath but compound tincture of benzoin is probably the best. If this is used, little or no trouble is experienced with adhesive except in the very unusual case. A few of the ways it can be used will be considered.

Oftentimes, one toe on a baby's foot is slightly hyperextended. I know of no absolute method to take care of this, but a sling to the two adjoining toes made of adhesive plaster so that the top of the toe is pressed

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Dr. Flinn, presently retired, practiced Orthopaedic Surgery, July 1929 - July 1965. and was a Diplomate of the American Board of Orthopaedic Surgeons. He was Chief of Service at Delaware, Memorial and St. Francis Hospitals, and Consultant to Delaware State Hospital, the State Welfare Home at Smyrna, Delaware Curative Workshop, the Children's Bureau and all the downstate hospitals. Dr. Flinn served two years as President of the Medical Board of Delaware Hospital and supervised the State Board of Health's Crippled Children's Clinics.

down to the level of the other two toes sometimes works.

In adults, Morton's toe is of considerable importance and causes a lot of pain and discomfort. In order to prevent spreading of the anterior arch, two or three thicknesses of gauze can be wrapped around the foot in the metatarsal region and this covered with adhesive plaster. This can be slipped off the foot and reapplied at any time. In a good number of cases, it is sufficient to take care of the pain associated with Morton's toe.

In using adhesive plaster for traction on a leg, it is well to obtain a piece sufficiently broad to cover the entire skin area. After all the skin is being used for traction and the more skin involved, the less tension and soreness there is in any one spot and the more efficient the traction is. Therefore, cut a piece to fit half the leg and then re-inforce this with another one exactly on top of it because two thicknesses will not cause wrinkling as much as the one; fix the other half the same way.

Strapping for arch strain. Remember that it is the falling arch that is painful. A flatfoot is not sore. If there is an acute arch strain, adhesive plaster is the best method probably to take care of it. Take two pieces of adhesive three inches wide, start with one just beneath the external malleolus and run it directly under the foot to the medial malleolus. Then strip it in three pieces down to the malleolus. With the heel in slight varus, pull the straight one straight up on the inside of the calf and let the others follow the contour of the leg around. The second piece should overlap the first by just a little bit. It should mainly be in the region of the main arch. The tape is now brought up to the talus where it is cut in strips. These should follow the contour of the leg and the lowest one should go straight back around the heel. Re-inforce the heel posteriorly with two or three more strips and the patient will experience relief.

For sprained ankles I much prefer the Gibney boot to any other method of strapping. Use one inch adhesive, run strips alternately up the leg in a "U" shape around the heel and then in a "U" shape around the foot until you have three layers around and then continue layers up the back until there are about six or seven pieces of adhesive there. Make sure that they do not unite in front. Powder the whole area with talcum power so it won't stick to clothing. Apply a stocking and insist on the patient walking. He should have considerable relief for five days when the process must be repeated again. At the end of about three weeks, the sprain should be healed.

In soleus gastrocnemius tears, cribriform strapping is best. Take one inch adhesive and make a checkerboard over the entire area so that there are empty spaces about one inch square. The whole strapping should extend throughout the soft tissue area and should be tight enough so that there will be slight squeezing of the leg on weight-bearing.

The best method for protection of a knee is the Duke Simpson strapping. This consists of three or four layers of adhesive up and down the sides of the knee to take care of the medial and lateral collateral ligaments. Cross straps across the front of the knee both ways. In back of the knee further strapping criss-cross is applied under slight tension when the knee is completely extended. Attach a piece of felt to each strap so that the strapping itself will not come in contact with the skin in the popliteal space. Then add circular ones around the top and bottom to hold the whole thing together. Complete flexion and extension is possible with this dressing and it affords maximum protection from lateral motion.

When it is necessary to strap a back, it is best to use adhesive three or four inches wide. Start well over the anterior-superior spine across the back and to the ribs on the other side high up and forward. It is much easier and much better for you to hold the adhesive still and have the patient turn; it can be applied more readily this way and much more evenly. Then cross the other way and use horizontal straps throughout. Continue building up until there is a complete layer of three or four thicknesses of adhesive.

This will prevent wrinkling and will afford firmer support. Above all, out of pure kindness, place a piece of gauze over the nipples. Unless the adhesive goes past one midline to past the next midline, it will not be satisfactory. This is also true for rib strapping although now canvas belts are usually better.

Acute cervical strapping can be done. It is a little difficult, but if there is no other method of holding the patient's neck, strapping with two or three thicknesses will certainly relieve the patient.

In supracondylar fractures of the humerus in children, I have for many years never applied casts. Use two or three pieces of adhesive two inches wide extending from the "U" around the humerus to forearm in as much flexion as is necessary and let the child go with just this minor contrivance. Within 24 hours, he will be using his hand and he will unconsciously be flexing his arm more than we could possibly get at the time of reduction, so that he receives a little bit of physical therapy along with his play.

The Knee

Because of its position, the knee is constantly exposed to all types of jarring and twisting stresses. When it gives way, something has to tear and it is up to us to find out what. When there has been a major injury such as in football, it is essential that an examination be made with the patient under anesthesia so that abnormal motions may be determined. In most other cases when a knee "goes out," this is not necessary. But any time there is the slightest doubt, anesthesia should be used in the determination of diagnosis. Immediate repair of a deranged cartilage and/or torn medial or lateral-collateral and cruciate ligaments is the only method I know to deal with this condition satisfactorily. In minor tears surgery is not necessary and should not be done. In 50 per cent of cartilage injuries, there will be normal healing with the following routine. The torn medial meniscus is slipped back in place. The patient is put on crutches and started on a regimen of physical therapy. If there is not much swelling, he can do it himself at home by following these instructions. Throw a handful of epsom salts in a basin of water as hot as he can stand it. Dip in a large bath towel. Wring it out just dry enough so it won't drip and wrap it around the leg from the toes to the groin, not just around the knee. Then put a dry towel on top of the wet one and let it stay there for twenty minutes while it is gradually cooling off. Do this daily. In the course of two to three weeks, most of the soreness will be gone, but this is not yet a well knee. Light weight-bearing with crutches is permissable but soaks and exercises must be continued to insure recovery. Exercising is important. Almost as soon as any injury occurs the quadriceps, especially the medial side, loses power and shrinks. The knee will not function normally until this muscle is brought back to normal. As soon as pain is gone (in two or three weeks) and not before, begin what is almost passive exercising. Sitting on a chair, place the foot on a roller skate to give a ballbearing surface and slowly move the leg back and forth. Start out by doing it only five times, then increase daily to, let us say, ten times. The object is to never let the quadriceps feel tired. If it does at ten times, then the following day it should be done eight times. This regimen is continued until it is being done twenty times a day. That is enough. The patient continues daily at this rate until the muscle looks and feels normal.

In the meantime he has been told the facts of the case. He may or may not have a torn cartilage. He certainly had a loose one because it threw him in the original injury. If the cartilage was loose, it could be torn from its attachments but these can heal. If it was torn — split or across — it won't heal, but this can't be known for six weeks. If after that time he has another episode, then and then only should his knee be operated upon. Of course, if during the first six weeks he has had further episodes the knee should be explored earlier.

My feeling about not doing exploratory operations on the knee is based on experience in World War II. Almost invariably a man with an old knee operation could not stand the pace in the infantry; sixteen to eighteen hours a day with a pack on his back was too much for his knee.

When operation is necessary, I prefer an oblique incision with removal of the whole cartilage under direct vision through two incisions in the capsule. On two different occasions by looking into the popliteal space, I found and removed an x-ray negative loose body.

What is to be done to a chronic torn anterior-cruciate ligament and a medial collateral ligament? Almost all of Dr. George E. Bennett's fascial work about the knee was based on the idea, I believe, of placing the fascia in line with the radius of the arc of motion in the flexion and extension of the knee. For instance for a chronic slipping patella, he used a checkrein of fascia from the insertion of the medial-collateral ligament in the femur to the medial side of the patella.

In repair of the anterior-cruciate and medial-collateral ligaments, take a piece of fascia about ten inches long, drill a hole in the patellar tendon insertion in the tibia, pass the fascia through it, and tie it. On the capsule with a Gallie needle, as if you were darning a sock, sew the fascia along a line to the insertion of the superficial medial-collateral ligament in the femur. Be sure to encompass the insertion in your fascial suture. Then carry your suture straight down to the tibia on the medial side and anchor it in bone through drill holes as you did at the start. Suture the fascia with catgut or silk at the intervals in the fascia to the capsule. This certainly will cut down on forward slip and act as a substitute for the medial collateral ligament.

With longstanding osteoarthritis of knees, sometimes local excision of a painful area along the joint line is desirable. The joint surface is so irregular and locked in places that there is no danger of loosening the cartilage. Removal of the pieces pinched between spurs produces considerable relief. Sometimes merely a wedge on the inner border of the heel to change the stress on the knee plus hot soaks will give relief. In this type, mild catharsis and low carbohydrate diet are helpful. In the diet I have used, there is great stress laid on the absolute avoidance of tomatoes and I believe this is important.

Shin Splints. My personal experience with this taught me a lot. I was in White Plains, New York, and had to run down a steep hill in order to catch the trolley into town. That afternoon and for the next two days I had no control of my anterior tibials. When I walked, my heels hit the ground and my soles slapped the pavement at each step. If I could have walked rapidly enough, I could have beaten a tattoo. The anterior tibial muscles were quite tender. I was in a situation where I could loaf enough and rest, so treatment was no problem. Soaks and careful muscle exercise would have benefited.

At one hospital in England the orthopedic surgeon was confronted with a situation where knowing your shin splints was necessary. Training, ie, marching, there was done on asphalt roads. Man after man came in to see him from various outfits in the neighborhood complaining of pain in the front part of the leg, always anterior tibial. The men said that shortly after they began to march, their legs hurt so much they had to drop out.

My confrere looked at their shoes. Of course, they were heavy army shoes, but in addition they all had heavy cleats on the soles. Any shoe ought to balance under the talus area. In these shoes he noticed that they slipped way forward. His treatment consisted of putting lead in the heels to counterbalance the extra weight of the cleats. This reduced the shin splints complaint.

Neuromata

In this category several different types of lesions may be present. There is the real neuroma with which we are not too familiar. Why neuromata do not appear more often in the healing scar of an operation is a marvel to me. Certainly they are seen more frequently in certain areas. They occur up the medial side of the knee over the femoral condyle and sometimes at the upper end of a hallux valgus scar. They are extremely painful and occasionally exploration is necessary to relieve the offending scar tissue and allow the nerve the freedom it so loudly demands. But the place where a damaged nerve or scar tissue involving a nerve most frequently appears is in the lower half of the leg on the medial side. Neuromata apparently arise from some minor trauma and this part of the leg is constantly being bruised by something. Scar tissue involves the nerve which in time causes severe pain or hyperesthesia in the nerve distribution and not at the site of the lesion. This occurs in the branches of the saphenous nerve. I have seen involvement extend from the medial side of the knee down to the foot but this is rare. Usually somewhere along the course of the nerve a lesion appears. The patient comes in complaining bitterly of pain, shooting at times, in the region of the big toe and medial side of the forefoot. In other cases, the shoe irritates the area so much that the patient has to remove it. It is only when careful finger palpation elicits discomfort that the patient localizes the area some four to eight inches above the malleolus. Often Novocaine in large doses to stretch the scar tissue in the hope of giving the nerve more room will relieve the condition. Sometimes, repeated injections of hydrocortisone may relieve it.

Twice I have seen patients with a postoperative residual which is very distressing and as far as I know cannot be relieved. Once I had cleaned out a gas gangrene of the leg from a gunshot wound in France. With sulfadiazine and penicillin, we had no fear of spreading gas infection, but, of course, the local bloodless area was infected. When I had finished, there was no muscle or anything between the tibia and fibula laterally. The entire interosseous membrane was gone. The bones were bare from the head of the fibula to the os calcis. The soldier recovered nicely. The wound granulated in and after a few other operations, he walked about but he ended up with hyperesthesia of the sole of the foot.

Another time, I had considerable difficulty in obtaining a tibial union with a ½-inch dehiscence. It was finally accomplished with a lower fibular graft to which I left the periosteum and its blood supply attached. When the patients fracture united and she started to walk, she had plantar hyperesthesia, uncontrolled.

You will know how these people suffer if you can imagine what it is like every time you put your foot on the ground to step on an electric shock.

At one time I had to do three operations in close proximity, all involving acute trauma of the region about the ankle joint. Postoperatively, it was interesting to note there was far less swelling and recuperation was much quicker than in the non-operated cases. I had made a special effort to align and sew back the torn ligaments in their proper places and I am sure this is why recovery was so rapid. I always tell the patient when he asks about swelling just to be patient. Swelling will continue until all the fluid in the leg has found a way out. When this occurs, and as soon as it does, swelling stops in short order. To help relieve it, use contrast baths. The procedure is as follows: Take a handful of Epsom salts and put it in a bucket of water as hot as the patient can stand it. Then place the offending member (upper or lower extremity) in it for five minutes. Take it out and put it in a bucket of cold water for one minute. Then back in the hot Epsom salts water for another five minutes (it's quite a shock!) and then back in the cold water for one minute. The whole procedure takes twelve minutes. Do this twice a day.

Don't ask me why Epsom salts helps. I am convinced that it does and will continue to use it. Even if it does not help, it certainly does no harm, and the patients love to help treat themselves. Maybe this is like a great clinician in Baltimore once said. He had just finished talking to a patient and he had quite definitely told her something that was mesmerizing. He knew, and he knew we knew. "Well, I suppose," he said with a smile, "there's a bit of charlatan in the best of us."

END

Highlights

ULTRASONOGRAPHY

J. Stauffer Lehman, M.D. — *Hahnemann Medical College and Hospital. Medical Conference, WMC. May, 1968*

While use of ultrasonography in certain areas of medical diagnosis is now firmly established, other applications and techniques are still in an exploratory and research phase.

Briefly stated, ultrasound is a form of non-ionizing energy propagated as a mechanical pressure wave. At the frequencies employed in medical diagnosis (varying from 1 to 15 megacycles per second) a "beam" of ultrasound can be produced. Ultrasound shares many of the physical properties of light in that it can be reflected, refracted, diffracted, absorbed and scattered. It is the property of reflection (echo ranging) which is employed in diagnostic applications.

The basic generator of the ultrasonic beam is a piezoelectric crystal, termed a transducer. Such unique crystals have the ability to convert electrical energy to ultrasonic energy and, conversely, ultrasonic energy to electrical energy. Thus, when a high-frequency alternating short pulse of electric energy is applied to the crystal, it vibrates or rings and produces a short pulse of ultrasound inaudible to the human ear. The beam of ultrasound may be directed through human tissues and on striking an acoustical reflecting interface within the tissues, may be reflected back to the crystal (transducer) as an "echo." Such an echo (mechanical pressure wave) returning to the transducer between repetitive energizing electrical pulses, will produce an electrical charge in the crystal. This electrical signal can be amplified and displayed on an oscilloscope.

Several types of display are employed; namely, A-Mode, B-Mode and B-Scan presentations. In both the A-Mode and B-Mode techniques the transducer is maintained in a fixed position with the beam of ultrasound appropriately directed to obtain reflections (echoes) from target acoustical interfaces.

In the A-Mode oscilloscopic display the echoes are presented as vertical displacements (spikes) along the time-base oscilloscopic trace. In the B-Mode method the echoes are presented as dots along a time base trace, and if the time base is electronically made to move vertically during the display, a moving acoustic interface such as a mitral valve leaflet may be studied as to amplitude and velocity of motion of the interface. The prime usefulness of both the A- and B-Mode techniques is the determination of the depth or distances of reflecting interfaces.

On the other hand, B-Scan ultrasonography yields information of a somewhat different nature in that the display is a two-dimensional, cross-sectional representation. Thus, if an organ or anatomical or pathological structure has a boundary of appropriate acoustic interfaces and/or has within it interfaces which will reflect ultrasound, its outline and certain information regarding its internal structure may be displayed. Such two-dimensional displays are accomplished by moving the transducer over the body surface while aiming the ultrasonic beam at the target organ or structure through all possible angles and projections with continuous recording on the oscilloscopic display. The spatial position of the moving transducer and the direction of the ultrasound beam must be electronically correlated with the cathode ray beam presentation on the oscilloscope for an effective "scan" of the area under investigation.

Obviously, it is important to distinguish between these several types of information displays. The term "scan" should be reserved for the two-dimensional type of ultrasonography. B-Scan ultrasonography is still in an investigational stage of development but holds great promise for the future.

The earliest application (and still the most frequent use) of ultrasound in diagnosis is the well-established procedure termed "echoencephalography." This technique has as its primary objective the determination of the position of the mid-line diencephalic brain structures, principally the third ventricle. Any significant shift of the mid-line structures from their normal position is inferential of a cerebral space-taking lesion. Echoencephalography employs the A-Mode type of display.

Another use of the A-Mode technique is fetal echocephalometry in which the biparietal diameter of the fetal head *in utero* may be determined. The A-Mode technique is also employed for the diagnosis of pericardial effusion with echoes returned from the pericardium separated from the heart wall. A further use of A-Mode ultrasonography is "echoaortography." This technique displays echoes from the near and far walls of abdominal aortic aneurysms and, hence, aids in (or establishes) the diagnosis and measurement of such aneurysms.

A-Mode studies are also useful in the study of other masses, where their boundaries produce echoes. Included here are intrarenal and intrahepatic masses, as well as such lesions as ovarian cysts and uterine fibroids. In fact, it is possible to establish, by the nature of the pattern of the echoes as displayed at various electronic amplifications, whether certain masses are of solid or cystic nature.

The B-Mode display, with moving time base or so-called time motion study (B-Mode TM), is useful for evaluation of the amplitude and velocity of a moving acoustic interface such as that presented by the anterior leaflet of the mitral valve. Since mitral valvular disease alters the motion of the mitral leaflets, echocardiographic study can yield very significant information as to the status of the mitral valve, particularly in the diagnosis and quantitation of mitral stenosis.

B-Scan ultrasonography, as previously mentioned, displays a two-dimensional, cross-sectional representation. The liver, spleen, kidneys and pelvic organs are interesting targets for B-Scan studies, and it is possible to display, on occasion, the outlines and echo pattern of certain masses and pathological processes involving these organs. Primary and metastatic neoplastic masses in the liver can frequently be demonstrated. Cysts within the liver can often be revealed. Fibrosing processes such as hepatic cirrhosis usually produce a fairly characteristic echo pattern. Mass lesions in the kidneys can be displayed. The diagnosis of uterine myoma versus ovarian cyst can often be clarified by B-Scan ultrasonography.

The gestational sac within the pregnant uterus can usually be demonstrated by the tenth week of pregnancy. The fetal head is regularly displayed by the sixteenth to the twentieth week. Not infrequently, in the later months of pregnancy, the location of the placenta can be determined by B-Scans. The diagnosis of certain abnormalities of pregnancy, such as acrania and hydatidiform mole, are not usually difficult by B-Scan ultrasonography.

The foregoing represents some of the applications of diagnostic ultrasound. Because ultrasound is a non-ionizing form of energy and since ultrasound, at the energy levels employed for medical diagnostic purposes, is devoid of harmful effects, its application to diagnosis is intriguing.

Ultrasonography combines the features of safety, simplicity of performance and lack of discomfort to the patient. It is, therefore, reasonable to predict that with improvements in equipment and the development of further reliable techniques, ultrasound will play an increasingly significant role in medical diagnosis.

Clinical Conferences

• Brief case reports are selected from those presented at recent medical or mortality conferences. Physicians are invited to submit presentations of cases from their own hospital or office practice. Editorial assistance in preparing these reports can be provided if desired.

HYPEROSMOLAR NON-KETOTIC DIABETIC ACIDOSIS: PNEUMONIA: PANCYTOPENIA

CASE PRESENTATION: RALPH BUBECK, M.D.
Resident in Medicine, W.M.C.

This 61-year-old woman who had no history of diabetes mellitus was treated with a tetracycline preparation for approximately one week prior to her admission to the hospital for an undiagnosed febrile illness thought to be pneumonia. She was admitted in a comatose condition, febrile, with tachycardia, and marked dehydration. On admission blood sugar was 780 mgs%; her plasma and urine were negative for acetone. Treatment included 300 units of regular insulin and intravenous fluids after which her blood sugar fell to 40 mgs%. She was transferred to the Wilmington Medical Center.

At the time of her admission to WMC, her blood sugar had fallen to 20 mgs/100 cc despite rapid infusion of 1000 cc 5% D/W. Her BUN was 81 mgs% and her sodium astonishingly high at 172 mEq/liter, her CO_2 was 30 mEq/liter. She was treated with intravenous glucose and saline, receiving 10 liters during the first 36 hours. Her urinary output was 3500 cc through this time. It was elected to perform peritoneal dialysis in the hope of correcting her abnormal electrolytes, dehydration, and azotemia. A lower right lobe pneumonia was confirmed by x-ray. In addition to fluid therapy and insulin as indicated by her blood sugar which was markedly sensitive to insulin, she received antibiotics which included cephalothin for 8 days and kanomycin from the 5th to the 11th day of hospitalization. Her lower right lobe pneumonia did not resolve. Her blood pressure on admission and throughout most of her hospital course was in the range of 150-160 systolic and 75-90 diastolic, but there were occasional readings of systolic pressure over 205 mm Hg without marked diastolic change. No etiologic agent for her pneumonia was cultured from her sputum. Her white count on admission was 35,900 per mm.^{3} Approximately one month later, while receiving kanomycin, her white blood count was found to be 1400 per mm^3. The appearance of skin petechiae prompted a platelet count which was 26,000 per mm^3. Hemoglobin at this time was 5.7 grams. Shortly thereafter she developed an episode of hypotension which did not respond to treatment with transfusions, intravenous hydrocortisone and Isuprel, and tetracycline.

Discussion *(R. B. Flinn)*

It was felt that this patient represented an example of the recently recognized syndrome of hyperosmolar, nonketotic diabetic coma which is associated with a great dehydration because of the water loss caused by the dehydrating effect of the marked hyperglycemia, in addition to a loss of sodium chloride which is somewhat less than the electrolyte loss associated with ketotic diabetic coma. It is considered a mystery why these people do not metabolize fat although it has been noted that sometimes when the hyperglycemia and dehydration are corrected, ketosis does subsequently develop. It is probably related to the rapid development of the marked hyperglycemia and the rapid subsequent osmotically mediated dehydration. It has been associated with a 50% mortality even in the absence of thrombocytopenia which in this unfortunate patient was probably drug induced.

(*Continued on Page 30*)

President's Page

RECENT ADVANCES IN CARDIOLOGY

It is now an accepted fact that more has been learned about pathophysiology and treatment of heart disease during the past decade than during the preceeding one hundred years. This is in a large part due to the establishment of intensive coronary care units in many hospitals throughout the country.

At a recent meeting of The American College of Cardiology, sponsored by St. Barnabas Hospital in New York City, over 800 physicians from 41 states attended a three-day course in advances in coronary heart disease. Prior to the use of intensive coronary care units, the mortality of acute myocardial infarction was between 30-35%. With the increased knowledge gained through constant monitoring of all infarction patients and through the training and dedication of nurses in these areas, as well as the recognition of arrythmias early in the course of this disease, the mortality in most centers has been reduced to between 15 and 20%.

In May, 1962, after making a survey of all patients admitted to Nanticoke Memorial Hospital, I had an article entitled *Acute Myocardial Infarction* published in the Delaware Medical Journal. Up to that time, this disease had increased markedly and especially in the previous ten years. From May, 1952 to May, 1962, the over-all mortality of proven myocardial infarction was 30.6%. About one year ago, our present four bed Intensive Coronary Care Unit was opened in a temporary area of our hospital. With one nurse having received training outside of our hospital, the remainder have been trained by our medical staff. The mortality rate during this year has been slightly less than 20%. This is certainly absolute proof that there is a place for intensive coronary care, and units should be established in all hospitals throughout our state.

Charles M. Moyer

Delaware Academy of General Practice

A REAPPRAISAL OF THE FAMILY PHYSICIAN

Doctor Maynard I. Shapiro, the newly elected President of the American Academy of General Practice, has charged that, "Monumental changes need to be made in our 'non-system' of health care in the United States if families are to receive the kind of health care they need."

Doctor Shapiro called for a reappraisal of the kind of doctors being produced to care for the families of the nation. In addressing a conference of magazine editors, meeting in New York, Doctor Shapiro said, "Approximately sixty per cent of all medical students should enter family medicine (or general practice) with the balance of forty per cent entering specialized areas of medicine." This represents a radical change from the present situation where more than eighty per cent of the young doctors enter specialty fields of practice and only sixteen to eighteen per cent enter the field of general or family practice.

If no change comes, the result foreseen is that the nation's families will find it even more difficult to have a well-trained primary physician who can act as their first and continuing contact through the complex medical structure that has developed around us. The only optimistic note found in this situation is the increasing awareness of the public and the medical world itself, that the problem must be faced and solved.

According to Doctor Shapiro, the fully trained family physician is the best qualified medical man to provide comprehensive and continuing health care to the family over a period of years. He can diagnose and treat patients in terms of their family relationships, and treat each patient as a total human being, taking into consideration all factors, mental and physical. If necessary, he will direct the patient to further medical consultation selecting an appropriate specialist. Doctor Shapiro called the family physician a "walking memory bank" of a family's medical history and medical requirements.

The AAGP President stated that the Academy has been working on programs to produce more and better-trained family doctors. It has called for a revision of medical school and residency training. These revamped training programs will establish family medicine as a new area of specialization. This innovation, according to Doctor Shapiro, has been advised by several government and medical group studies, strongly recommending the vital need for a primary physician as the initial contact between the family and the health care structure. Approval of this specialty will be on the agenda of the Advisory Board for Medical Specialties at its February meeting in conjunction with the AMA Congress on Medical Education in Chicago. Doctor Shapiro pointed out that a revolution in thinking is needed to bring about the necessary training programs and medical-professional status that will provide the nation with more of the scientifically trained family doctors it needs.

THE SWISS HAVE A WORD FOR IT

Venoconstriction occurring from immersion in icy water can be accompanied by tremendous increases in systolic and diastolic arterial blood pressure and in cardiac output. These responses provide a possible explanation for the sudden death which sometimes occurs when patients with left ventricular disease swim in or are thrown from boats into very cold water. In the glacial lakes of Switzerland, this type of sudden death is sufficiently common to be named "hydrocution." *(N.E.J.M.: Veins and Their Control, Feb., 1968)*

Letters to the Editor

AFRICAN REPORTS

To the Editor:

It was my recent privilege and pleasure to visit with Dr. Christian Barnard at the Groote Schuur Hospital in Capetown, South Africa. In addition to the excellence of the cardiac surgery being done there of which we are all familiar, I was greatly impressed with the training and use made of medical assistants. These individuals had been trained in skills to perform highly specialized and sophisticated procedures to aid the physicians.

The same very useful and effective training of non-medical personnel to accomplish many jobs and skills was noted at the Haile Miriam Mamo Memorial Hospital in Nazareth, Ethiopia. Here Paul Yoder, M.D., who was an interne at the Delaware Hospital is making an excellent contribution.

Herbert M. Baganz, M.D.

* * *

To the Editor:

Some medical impressions of my recent African trip may be of interest to our members.

I was privileged to present a paper at the Congress of Ophthalmology in Johannesburg after which my time was utilized in visiting other medical facilities in the area. The University of Witwatersrand in Johannesburg appears modern, well-equipped and quite similar to anything one would find in the United States, with one exception. That exception is due to "aphartheid": white students only is the rule, although some "blacks" are trained at a school near Cape Town. I observed a great deal of research of the first order especially in abdominal decompression, a technique pioneered by Professor Heyns of Johannesburg. There may be some decided advantages in using this system for cases of acute toxemia and there is some evidence of its beneficial effects in decreasing the length and discomfort of labor.

Ten miles out of Johannesburg is a hospital known as Baraguana. This two-thousand-bed hospital is exclusively used for the care of the black people in South Africa. ("Black" is used to differentiate these patients from the colored or more mixed type of population.) A full day was spent touring this magnificent institution which boasts that consultation in any field of medicine may be had on thirty minutes notice. I have no reason to disbelieve this statement and found the wards clean, orderly and in general, well-equipped. Closed circuit television was used in the operating rooms, open cardiac surgery was being performed, and nurse anesthetists were skillfully performing. The physicians are white with the exception of two, and three of the key nursing personnel are white, otherwise the entire institution is staffed and run magnificently by the black people. Many of us are deeply concerned about the question of social justice in South Africa but my limited visit to that country convinced me that their black population receives some of the best medical care available. The white South African is very proud of this and points to the longevity, the decrease in perinatal mortality, and the decrease in maternal mortality in black patients.

In Ethiopia we had the privilege to visit for several days in the small town of Nazareth some sixty miles south of the capital of Addis Abba. Dr. Paul Yoder, formerly of Delaware, a dedicated Mennonite physician, literally runs and does all the sophisticated medical work for his hospital of eighty beds. The great emphasis there has been on teaching, and some seven hundred of the two thousand "African Dressers" of Ethiopia have been trained through his hospital in the past ten years. These people, both men and women, receive training of a most practical value if not quite as sophisticated as that of a registered nurse. The African Dresser can suture minor wounds, make diagnoses and treat people for whom he is often solely responsible in out-lying areas. Through this magnificent effort not only has the health of the people in Nazareth been elevated but throughout the entire country an improving health standard has begun. One cannot help but be impressed with the utilization of paramedical personnel all over Africa. This frees the few physicians for more sophisticated tasks and in this is a lesson for American medicine. We, too, must make these adjustments if we are going to increase the health standards in our own country.

John M. Levinson, M.D.

Editor's Note:
Davis G. Durham, M.D., also made the trip to Africa. While there, he gave a lecture entitled, *Complications in Cataract Surgery*, and showed a movie entitled, *Diamond Knife in Cataract Surgery.*

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CLINICAL CONFERENCES

(*Continued from Page 26*)

Post-Mortem Examination (*R. R. Dickerson*)

Examination revealed an atypical bronchopneumonia characterized by a sparsely cellular hemorrhagic fibrinous material deposited throughout the alveolar spaces. Only a few polymorphonuclears were present. The lumbar bone marrow was examined and was markedly hypocellular. An incidental finding of unknown clinical significance was a vascular tumor of the left adrenal medulla which was consistant with a pheochromocytoma.

* * *

EXCERPTA MEDICA

Abnormal Sexual Development: A Genetic and Endocrine Approach to Diagnosis
Daniel D. Federman, M.D., *W. B. Saunders Co., 1967 (Academy of Medicine Library)*

"The development of sexual difference is one of the evolutionary landmarks of biology. . . Because the organs involved subserve the preservation of the species rather than the individual, disease in them does not necessarily compromise the latter's health. Nevertheless, these disorders carry a high toll of human unhappiness and therefore warrant the physician's attention as much as more "serious" diseases. The goal of this book is to provide a rational interpretation of sexual development within which the diagnosis and therapy of specific disorders can be considered. . .

"The feeling of a sexual identity is one of the fundamental orienting factors in man's consciousness. In addition, the need to function as a coital partner and the ultimate desire to procreate continue to polarize attitudes toward self and others well into adulthood. Innumerable legal, moral, and social patterns require functioning in specific gender roles and provide punitive sanctions against deviation. For all these reasons, the failure of normal sexual development provides a painful handicap to the affected person and a special responsibility to his physician. . .

"Although the goal of therapy, as in all of medicine, is the attainment of normality, in many of the disorders we have discussed this is a vain hope. The ambition of treatment must be informed by reality. . ."

Editorials

CONTROL OF AIR POLLUTION IN DELAWARE

Across the nation programs are being planned to handle the problem of air pollution which, in one form or another, faces the entire country. Delaware, too, is in the process of developing a more comprehensive Air Pollution Control Program.

The full implementation of a control program requires knowledge of existing air quality, information relating to the extent and nature of air contaminants. Unfortunately, there is only a limited amount of information available at the present time on Delaware's air.

The initial assessment of Delaware's air quality is that while generally good, there are certain areas in the State which require prompt attention. The two factors (population density and industrial activity) which are equated with the presence of air pollution exist north of the Chesapeake and Delaware Canal. It is in this area that Delaware's major air pollution problems are to be found. The area south of the Canal is generally agricultural in nature with a lower population density and, except for a few localized problems, enjoys a high quality of air.

It is in the Wilmington area that the initial control efforts will be implemented. The air pollution in this area has not reached critical proportions, although there are certain sectors which appear to have unacceptable levels of various air contaminants.

One of the first steps in pollution control has been the establishment of a comprehensive ambient air quality monitoring system. The purpose of this system is threefold. First, it measures the existing air quality throughout the State. Secondly, it allows problem areas to be delineated and sources within these areas to be located. Finally, such a system will allow a continuous evaluation of the control program by measuring the degree of its effectiveness and will signal the need for additional control measures. The major emphasis of the monitoring system will be placed in the greater Wilmington area. The system will be comprised of the most modern sensing devices with data processing techniques being employed so as to allow prompt evaluation and utilization of the generated information. Various types of instrumentation are being evaluated at this time, and site locations have been selected. Establishment of the monitoring system was initiated in the fall of 1967 with the full implementation of the proposed system requiring about three years. The initial feed-back of information will begin around the end of 1968. This data will then begin to show how dangerous the air in this State has become.

The first steps have now been taken in providing an adequate program of air pollution control. We as physicians must support the air pollution authorities in their efforts to reduce this hazard to health in our communities.

Edward F. Gliwa, M.D.

NEW YEAR'S GREETINGS

The editorial staff wishes all of you a good new year — health, happiness, joy in your work. To our new administrations — state, city, country—we wish the same. For all, may 1969 be more peaceful than 1968 which was certainly memorable but hardly wonderful.

For ourselves we wish a year of many manuscripts: articles, letters, case reports, "Highlights" of meetings you go to, speeches you give. For we agree that "every medical occurrence, failure or success, is potentially a valid basis for published discussion. The application of hypothesis to practical situations and the reporting of results constitute a living mirror in which the alert physician evaluates his work." (See *Why And How*, page 8.)

Happy New Year, Doctor.

And keep the Journal in mind.

In Brief

State Board Licensure Examination

Dr. Andrew Gehret's report of the innovation in Delaware's State Board Licensure examination was reported in a recent Federation Bulletin. In Delaware this year, in addition to the usual written examination, all candidates for licensure were given two patients other than in their own specialty who were then examined by physicians whose field of specialty was appropriate to the patient's illness.

Orthopaedic Surgeons Meeting

S. Ward Casscells, M.D., participated in the Thirty-sixth Annual Meeting of the American Academy of Orthopaedic Surgeons held January 18-23, 1969, at the Americana Hotel, New York City. In a study of 226 cadaver knees of aged persons (average 71 years) to determine how much degradation the cartilage of the knee undergoes during a lifetime, the human knee cartilage was found to have a remarkable ability to withstand normal usage. Dr. Casscells told the surgeons that the study tended to dispel the notion that cartilage is an inert substance as was once thought. In some cartilage there appears to be a healing of defects.

Speakers On "Ask The Doctor"

Speakers for February, 1969, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are:
Feb. 4, Lawrence Katzenstein, M.D., *Fungus Infections*; Feb. 11, James J. Gallagher, M.D., *Static Obstruction*; Feb. 18, Allston J. Morris, M.D., *Strokes*; Feb. 25, George R. Hilty, III, M.D., *German Measles Vaccine.*

Seaford Seminars

The Seaford Seminars of the Medical Society of Delaware will be held at the Nanticoke Memorial Hospital Hospital from noon to 1 p.m. on the second and third Tuesdays of each month from September, 1968, through June, 1969:
Feb. 11, 1969, *Important Problems Commonly Seen in Children's Orthopedics*, G. Dean MacEwen, M.D.
Feb. 18, 1969, *Pediatric Cardiology*, David A. Levitsky, M.D.

New Drug Reference

The AMA's Council on Drugs is deeply involved in an extensive project to develop *AMA Drug Evaluations*, a book which will replace *New Drugs. ADA*, as the new publication will be called, (introduction some time in 1969) will culminate seven years of planning and discussing. Developed by the AMA solely for the medical profession, *ADA* will provide independent, "consensus" evaluations on approximately 1,300 drugs on the priority list which include all most commonly prescribed or used by physicians, all single-entity drugs introduced within the past 10 years and other selected drugs which have notable value, unusual toxicity, notoriety or need for notoriety. Thorough indexing will assure maximum economy of the physician's time.

TB Society Grant

The Delaware TB Society contributed a grant of $250.00 to the Delaware Academy of General Practice toward the Pennsylvania Hospital Radio Seminars.

Operating Room Technicians

Temple University Hospital has inaugurated a program to train and develop operating room technicians who will serve as members of the surgical team and primarily help to prepare the patient in the operating room, sterilize instruments and pass them to the surgeon. Historically, graduate nurses have been scrubbing for operating room duty and handling the instruments, but it is felt that a nurse's time can be better spent in circulating through the operating room and supervising non-professional personnel. The current class is composed entirely of women, ranging in age from 18 to 37. Trainees are undergoing a 30-week course of instruction including 15 weeks of theory, anatomy and physiology. The rest of the time will be spent getting on-the-job training.

American Academy of Clinical Toxicology

This group has been founded for the advancement of clinical toxicology, a medical specialty concerned with the diagnosis and treatment of poisoning and drug intoxication. The purposes are to encourage clinical investigation, to promote the development of diagnostic and therapeutic methods, to foster among practicing physicians a better understanding of the treatment of poisoning, and to improve the medical care received by the poisoned patient. Applications for charter membership and further information may be obtained from: Eric G. Comstock, M.D., American Academy of Clinical Toxicology, P.O. Box 2565, Houston, Texas 77001.

AEC News Notes

The Atomic Energy Commission is proposing to reduce prices on the radioisotopes carbon-14, tritium and polonium-210. Carbon-14 is widely used in medical and biological research. Tritium is employed in tracer studies, particularly in the field of hydrology. Prices for small quantities of plated polonium-210 metal remain unchanged. The proposed reduction is for large quantities.

The Month In Washington

Developments in the drug field include starts on tests of an old drug in treatment of pneumonia and a new one for Parkinson's disease.

Two Drugs

The NIH started a wide-spread test of a polyvalent pneumoncoccal vaccine that was discarded 20 years ago with the entrance of antibiotics. It has been demonstrated that persons die of pneumonia because of early stage damage and that antibiotics have not been a cure-all. The old vaccine (E. R. Squibb and Sons) was licensed and found effective in 1948, but was taken off the market in 1952 because of lack of sales. "Penicillin was the cure-all in those days," Edwin M. Lerner, M.D., coordinator of the program, said. "It was felt that there was no need to vaccinate people; we thought we could cure them."

The PHS announced a program to test an experimental drug in treatment of Parkinson's disease. Robert Q. Marston, M.D., Director of the National Institutes of Health, said the drug, L-DOPA, may help "up to 75% of patients." But he cautioned it has "serious and unpleasant side effects."

— The PMA disputed the finding of an HEW Task Force on Drugs that a $41.7 million saving could have been obtained by use of generic instead of brand name products in 67 of the 409 prescription drugs used most often by elderly persons.

— An FDA Advisory Committee said that existing data on whether birth control pills can cause cancer of the cervix is still inconclusive.

LSD Babies

A deadly brain and skull defect was found in four of 14 aborted fetuses whose mothers used LSD, Dr. Cecil B. Jacobson, a George Washington University geneticist reported. He also found "moderate" to "severe" flaws in chromosomes of "at least 50 per cent" of 75 female LSD users. The subjects were found by advertising in an underground newspaper for pregnant LSD users, "No Questions Asked." Eighty per cent of the women studied were unmarried, Jacobson said. Some had taken as little as one dose of LSD and others had taken it numerous times.

Man Faced with Self-destruction

Man is threatened with self-destruction because he has damaged, ignored and contaminated "the earth that gives him life." Charles C. Johnson, Jr., Administrator of the newly created Consumer Protection and Environmental Health Service in the Department of HEW, said the threat — from pollution, unsafe food, drugs, water and chemical additives to food, —is increasing each year. "With regard to the physical environment, we have reached, or at very least are rapidly approaching, a critical point. Every year, pollution gets worse, rather than better; the threat from unsafe food, drugs, water and a variety of consumer products is increasing; the quality of American life, particularly urban life, is deteriorating in a morass of environmental problems so complex as to appear almost beyond remedy," Johnson said.

CLINICAL NOTICES AND MEETINGS

American College of Surgeons

Doctor Pierre L. LeRoy, President, Del. Chapter, American College of Surgeons, would like to announce the following programs:

1) Tuesday, January 28, 1969, 8:30 p.m., Delaware Academy of Medicine.
   Topic: *Fiscal Responsibility 1969-1970.*
   Moderator: Daniel J. Preston, M.D.
   Panel: Joseph E. Belgrade, M.D., James M. Chase, Jr., M.D., Conley L. Edwards, M.D., John M. Levinson, M.D., Howard Wilk, M.D.
   The panel will discuss the history and development of the prepayment programs. Projection for 1969-1970 will be made.
2) Tuesday, March 25, 1969, 8 p.m., Delaware Academy of Medicine.
   Doctor Jonathan Rhoads, Chairman of the Board of Regents, American College of Surgeons, and Professor of Surgery, University of Pennsylvania School of Medicine, will speak on *The Changing Aspects of Surgical Practice in the Delaware Valley.*

EEG Course

The American Electroencephalographic Society and Baylor University College of Medicine will sponsor a *Course in Current Problems in Electroencephalography: Advances Toward their Solution* to be held March 13-15, 1969, in Houston, Texas. For further details, contact: Dr. Peter Kellaway, Baylor University College of Medicine, Texas Medical Center, Houston, Texas 77025.

Medical Assembly

The 1969 Atlanta Graduate Medical Assembly will be held February 24-26, 1969, at the Regency Hyatt House, Atlanta. AAGP credits will be given. For information, write: A.G.M.A., 875 West Peach Tree, N. E. Atlanta, Georgia 30309.

Heart Symposium

The Eighth National Symposium on *Pulmonary Circulation,* sponsored by the Heart Association of Southeastern Pennsylvania, will be held in the Sheraton Hotel, Philadelphia, on February 13-14, 1969. Fee is $50.00 which includes two luncheons. For information, write John C. Nolan, Heart Assn. of S. E. Pennsylvania, 318 S. 19th Street, Phila., Pa. 19103.

The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

DRUG ABSTRACTS

Evaluation of Tuberculin Testing in the Elderly

Data are presented on the results of tuberculin (PPD-S; purified protein derivative standard, human) testing on 171 elderly subjects in a home for the aged.

Only 93 of the 171 subjects showed any evidence of cutaneous induration with either the first or second test. The number of reactions to PPD-S in the 91 subjects with x-ray findings of inactive pulmonary tuberculosis was almost double that in the 80 subjects who had no x-ray evidence of tuberculosis. However, only 58 of the 91 subjects with positive x-ray findings showed a positive cutaneous response to either the first or second PPD test.

PPD-S tuberculin tests in the elderly reveal a loss or reactivity, which suggests that diagnostic criteria must be scaled downwards. In some instances the only basis for evidence of prior infection with tubercle bacilli would be the anamnestic response to a second dose of PPD-S stimulated by an initial dose of 0.0001 mg administered intracutaneously six weeks earlier.

Harris, C. (Gerontological Research Inst., Philadelphia, Pa.) J. Am. Geriat. Soc. 15:828-837, 1967.

MAREZINE — Misuse

Each of three 17-year-old students ingested 15 tablets (750) mg) Marezine (cyclizine BW&Co.) to experience a "high." Within 30 minutes they became euphoric and experienced the feeling of having "transcended" everyday problems. All three showed strikingly similar symptoms: tachycardia, hypotension, exhilaration, disorientation, inability to perform simple calculations, deterioration of judgment, widely dilated and slowly reactive pupils, slurred speech, tremulousness, incoordination, ataxia, poor heel-toe walking, pastpointing, positive Romberg tests, and bilateral Babinski responses. Two boys had hallucinations and one had a convulsion. Six hours after taking the drug the boys were euphoric and tremulous but were oriented and their vital signs had returned to normal. Although there have been no published reports of accidental or purposeful overdose from "over-the-counter" Marezine, the manufacturer has received sporadic reports of misuse from various areas in the United States.

Gott, P. H. (Lakeville, Conn.), N. E. J. M. 279:596 (Sept. 12), 1968.

Transfer of Tetracycline Across the Human Placenta

The passage of tetracycline across the human placental membrane has been studied by giving nineteen women in obstetrical labor tetracycline 100 mg intravenously over a 3-5 minute period. Maternal venous blood samples were taken prior to injection, immediately following injection and at various intervals thereafter. Umbilical cord blood samples and in 7 cases amniotic fluid samples were collected within a two minute period for tetracycline assay.

Maternal serum levels of tetracycline fell rapidly. The drug appeared in the cord serum 10 minutes after injection, peaked at an average peak of 1.5 hours and then fell gradually. The drug appeared in the amniotic fluid in 18 minutes and reached an average peak at 2.3 hours.

Since study demonstrates the ability of tetracycline to cross the human placenta and enter fetal circulation and amniotic fluid, tetracycline may be a very useful drug against sensitive organisms causing fetal sepsis or amnionitis.

LeBlanc, A. L. and Perry, J. E., U. of Texas Med. Branch, Galveston, Texas Rept. Biol. Med. (1967).

This is a monthly series of drug information abstracts gathered from current articles and prepared by the pharmacists with the purpose of alerting you on drugs and/or their complications.

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Delaware Medical Journal

FEBRUARY, 1969

NUMBER 2

VOLUME 41

WHAT SHOULD A MAN EAT?

• Atherosclerosis is more prevalent in this country than anywhere else in the world. Why? Is it because we lead a too sedentary existence under too much emotional tension? Is it because we consume more saturated fat and more sugar than other peoples? What should a man eat?

Lewis B. Flinn, M.D.

It is generally accepted today that atherosclerotic disease of the coronary arteries, of the cerebral and peripheral vessels is most prevalent in the more civilized, more affluent societies such as Northwestern Europe and especially the United States. To date no specific cause has been determined for this unfortunate state of affairs although a number of possibilities have been suggested, such as: overweight, insufficient physical exercise, increased nervous tension, anxiety and diet. Perhaps all of these factors play a part, but the one which has engendered the greatest controversy, research, and interest is diet. For many years it has been noted that persons with known atherosclerotic disease have statistically, with many individual exceptions, higher values of blood lipids. Whether this relationship is causal is still debatable but the evidence is becoming clearer as time goes on that it is. It may therefore be desirable to reduce serum lipids in the hope of preventing atherosclerotic disease and perhaps even reversing some of its effects when found present in an individual.

It has long been felt by many investigators that too great an intake of fats, especially saturated fat, is the major cause of lipemia. Gofman[1], Steiner[2], Kinsell[3,6], Ahrens[4] and Keys[5], to mention only a few, have conducted clinical experiments which support this thesis. Recently Blumenfeld[7] has warned of the dangers of eating saturated fats in a book designed mainly for lay readers in which he perhaps may have exaggerated the horrors involved. Kinsell[8] pointed out that polyunsaturated fats, when taken in large enough quantity compared to saturated fat, tend to lower serum lipids; in other words, it seems to be a question of dosage (Fig. 1). Ahrens[4] found that the lipids varied according to the type of fat ingested as indicated in a study described in Figure 2. However, when the total caloric intake was marginal or slightly below, the lipids were low whatever the fat intake. It was also noted but not emphasized by Ahrens,[4] that if the proportion of carbohydrate was high the serum

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Dr. Flinn is Honorary Physician, Department of Medicine, Wilmington Medical Center, Delaware.

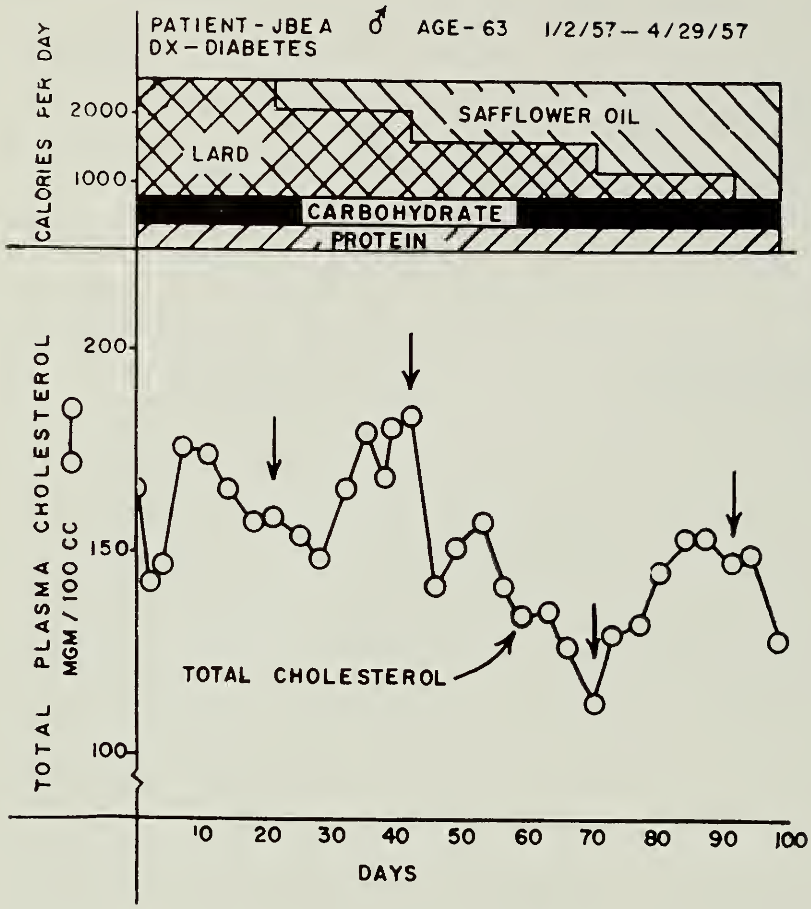


Figure 1

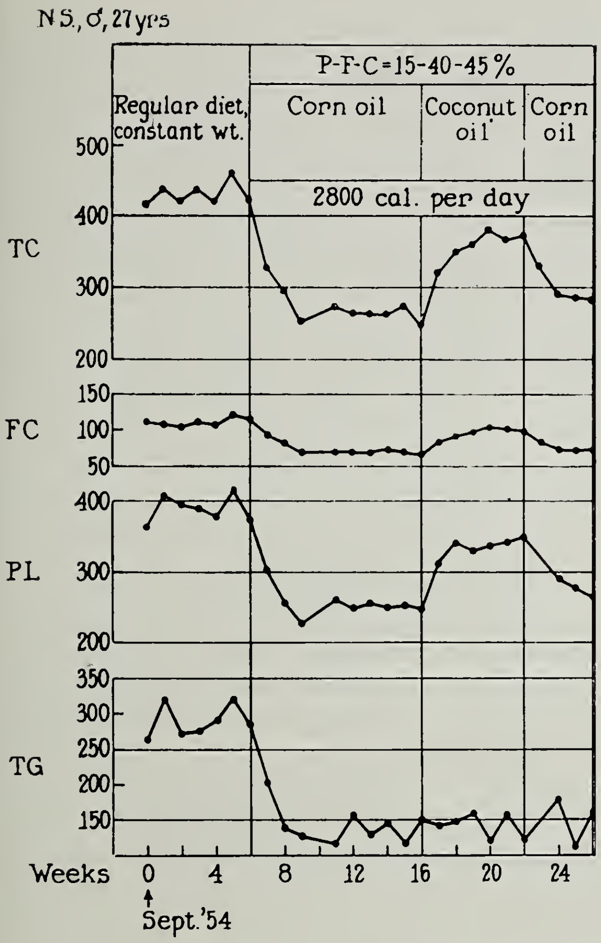
Effects of different ratios of dietary unsaturated and saturated fat, respectively, upon levels of plasma cholesterol in a sixty-three-year-old male mild diabetic without evidence of vascular disease.

(From Kinsell. See Ref. 8)

lipids were high even if all the fat was polyunsaturated such as corn oil or safflower oil (Fig. 3). In more recent years with improvement in methodology the triglycerides in the serum were found to be more reactive to diet changes than the cholesterol or phospholipids. Kinsell[9] in 1962 further advocated that since a high carbohydrate diet in diabetes tends to increase serum lipids the preferred diet is moderately low carbohydrate and fat modified so that the larger proportion is polyunsaturated. This is not far from the diet suggested by Newburgh and Marsh[10] and Woodyatt[11] before and during the early days of insulin. Woodyatt calculated the diet on the basis of fatty acid to glucose ration of 1.5:1.

McGandy and co-workers[12] reviewed the whole problem of diet with reference to atherosclerotic disease in 1967. Although cognizant of the fact that a high carbohydrate diet may result in hypertriglyceridemia, they concluded that lowering of the proportion of dietary saturated fatty acids, increasing the proportion of polyunsaturated acids, and reducing dietary cholesterol are likely to prove the most beneficial measures. Since diets low in fat and high in sugar are rarely consumed, they concluded that the fat in the diet is most important. They submitted a chart (Fig. 4) which is of considerable interest. It shows that high saturated fat consumption goes hand in hand with sugar consumption and that the United States stands at the head of the list of the countries recorded. McGandy also pointed out as has Van Itallie[34] that certain dietary changes often produce transient alteration in serum lipids. Conclusions drawn from short clinical experiments therefore may not be truly representative of the effect of the dietary intake under consideration.

The ultimate conclusion as to the effectiveness of modified fat diets unfortunately must wait until a mass diet field trial can be conducted. Such a mass investigation is most



TC—Total Cholesterol FC—Free Cholesterol
PL—Phospholipids
TG—Triglycerides (all in mg 100 ml serum)
P-F-C—Dietary proteins, fats, and carbohydrates, as percentages of total calories.

Figure 2
A 26-week study of serum-lipids of Patient No. 9, maintained at constant body-weight on ad-lib feedings, then by oral formula feeding exclusively. (From Ahrens. See Ref. 4.)

difficult as pointed out in the preliminary report of the National Diet-Heart Study in 1962[42] and more recently in the final report in 1968.[43] In the five centers throughout the country about 900 men were followed for five years mainly on three types of diet. 1.) Diet B — containing fat 30% of total calories with polyunsaturated fat to saturated fat (P/S) in a ratio of 1.6; 2.) C Diet with higher total fat P/S 2.1; and 3.) Diet D with same total fat as C but P/S 0.4. The result was not dramatic but showed the greatest cholesterol reduction in Diet C, almost as much in Diet B and very little change in Diet D. No conclusions could be drawn in regard to cardiovascular events. There is also a recent report from the Lahey Clinic[43] in which some 500 individuals were examined 20-30 years after initial hypercholesterolemia. Again the result was not dramatic but there was a trend for more cardiovascular disease in those with higher cholesterol.

More recently more attention has been focused on the carbohydrate intake. A number of investigators in addition to those mentioned above have well documented the fact that a high carbohydrate intake raises serum lipids and produces hyperglyceridemia. Blankenhorn[13] found that most cases of ischemic heart disease in young adults have the type IV hypertriglyceridemia of Fredrickson[14] when placed on a diet with 85% of calories carbohydrate. Ahrens[15] in 1961 showed that in individuals on a 2500 calorie diet in which the protein, fat and carbohydrate were respectively 15, 10 and 75% of the total calories, all the serum lipids, especially the triglycerides, were increased as contrasted with a diet of P15, F70 and C15% or P15, F40, C45%. A high fat (corn oil) low carbohydrate diet resulted in the lowest serum lipid values (Fig. 3). Kuo[16] reported 90% of 286 patients with coronary artery disease had hyperglyceridemia carbohydrate induced. Kuo[17] also reviewed in interesting detail the current metabolic-genetic interrelationship in human atherosclerosis. He found that fat induced lipemia is rare and is probably a familial disorder. He feels that the majority of individuals with atherosclerosis fall into the category of carbohydrate induced hypertriglyceridemia. He suggests a low carbohydrate, low total caloric diet without refined sugar, alcohol or dairy products as the main basis for management of atherosclerosis. The rice diet given in the early 1950s for hypertension usually resulted in a neutral fat lipemia. The fat intake was 20 gm a day, with high carbohydrate as rice as reported by Hatch, Abell and Kendall.[27] On the other hand Bierenbaum[26] has reported a 5-year study in 100

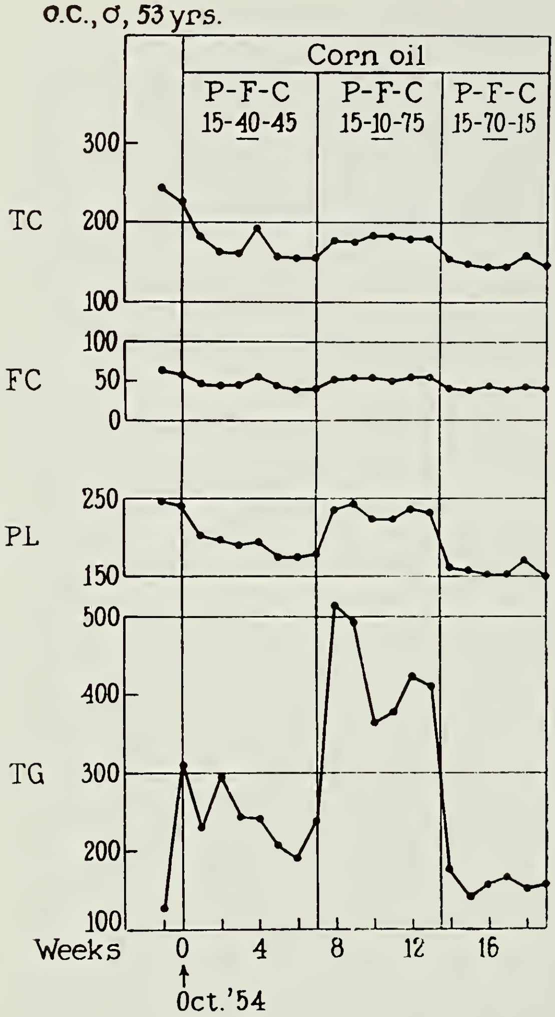


Figure 3

Effect on serum-lipids (Patient No. 31) of varying the proportions of fat and carbohydrate calories reciprocally, keeping total calories, protein, and body-weight constant. Major changes in triglycerides, smaller differences in phospholipids, and least striking effects on cholesterol. Lowest serum-lipids on highest intake of corn oil, highest levels on lowest intake. (From Ahrens. See Ref. 4.)

young out-patients with coronary disease in which those on a 2000 calorie diet with 28% fat had less mortality and less recurrence of infarction than the uncontrolled diet group. It made no difference whether this 28% fat was saturated or unsaturated. Perhaps for this group 2000 calories represented really a low calorie diet.

Kuo[17] and others have suggested that insulin may play a part in the elevation of the serum triglycerides. Many individuals with atherosclerosis and hypertriglyceridemia also have hyperglycemia and often obesity. Reaven[18] notes that plasma insulin after a glucose oral load is elevated far more than the plasma glucose and therefore may increase hepatic triglyceride production. Bierman and associates[19] feel that obesity creates carbohydrate intolerance and an increase of immuno-reactive insulin. Ford, Bozian and Knowles[20] found that total fasting triglyceride levels are determined by circulating levels of glucose and insulin but that the insulin levels are more dependent on the degree of obesity than the level of plasma glucose.

In 1954 Flinn and Richardson[21] studied blood lipids in diabetics in the fasting state and after a fat test meal. The most interesting finding was increased serum turbidity after the high fat test meal but only when insulin was administered before the meal. This occurred also in the non-diabetic controls. It was suggested that this might be due to stimulation of the adrenal cortex by the hypoglycemic effect of the insulin. Previously Rich[22] had reported turbidity of serum resulting from cortisone. A high carbohydrate low fat diet in diabetes resulted in high serum glycerides and cholesterol as reported by Bierman[28] in 1961. A later report in 1968 by Bierman[29] suggests that obesity may be more important in developing hypertriglyceridemia than the carbohydrate intake per se and perhaps is related to increased plasma insulin. In renal failure[30] triglycerides are often elevated possibly because of the increased plasma insulin which accompanies renal failure especially during dialysis. Davidson and Albrink[31] found that the high plasma insulin associated with hypertriglyceridemia was independent of diabetes and obesity.

Yudkin[23,24] noted that the national levels of consumption of fat and sugar are closely similar and feels that sugar rather than fat is most important in the etiology of athersclerosis. Ostrander[25] from a careful study in Tecumseh, Michigan, showed that a large group of individuals with coronary disease had both hypertriglyceridemia and hyperglycemia

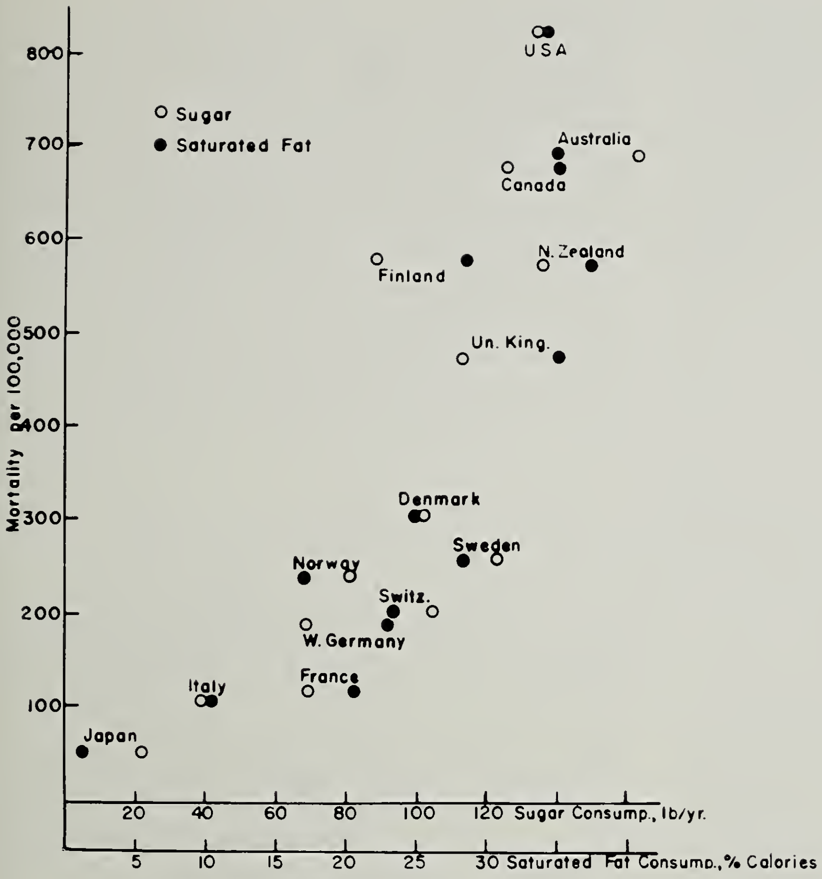


Figure 4

High saturated fat consumption goes hand-in-hand with high sugar consumption. The United States stands at the head of those countries recorded. (From McGandy et al. See Ref. 12.)

and suggested that carbohydrate restriction is more important than fat restriction. The type of carbohydrate may be of importance. Kuo and Bassett[32] found that sugar produces much higher serum glycerides than starch (Fig. 5). This may be a question of slower absorption and therefore less of a stimulation of the islands of Langerhans. MacDonald[33] found that fructose, one of the two components of sucrose (cane sugar), seemed to increase serum glycerides in man and postmenopausal woman to a greater degree than glucose, the other component of sucrose.

Recently there have been several reports [34, 35, 36, 37, 38] concerning the effect of the absorption of medium chain triglycerides on blood lipids. These fatty acids with chain length less than 16 are almost all saturated fatty acids and in general have low iodine values. It seems that these medium chain triglycerides are absorbed more readily than fatty acids with longer chains, are immediateculy transported to the liver via the portal circulation rather than into the general circulation via the thoracic diet, are oxidized in the liver to two carbon fats with resulting increase in serum triglycerides and are not stored in adipose tissue. It has been noted[36] that medium chain triglycerides do not elevate serum triglycerides in a hypocaloric diet.

Evidence that ethanol intake raises serum lipids has also come under recent investigation.[38, 39, 40] Alcohol is metabolized very much like medium chain triglycerides. It is absorbed rapidly, immediately transported to the liver where it is oxidized to water and acetic acid itself a short chain fatty acid.[38] In individuals who consume large amounts of alcohol the serum triglycerides return to normal but free fatty acids accumulate in high concentration perhaps because the high ethanol level has impaired liver function.[39]

After this short summary of the veritable maze of data, some of it quite controversial and some contradictory, the question may

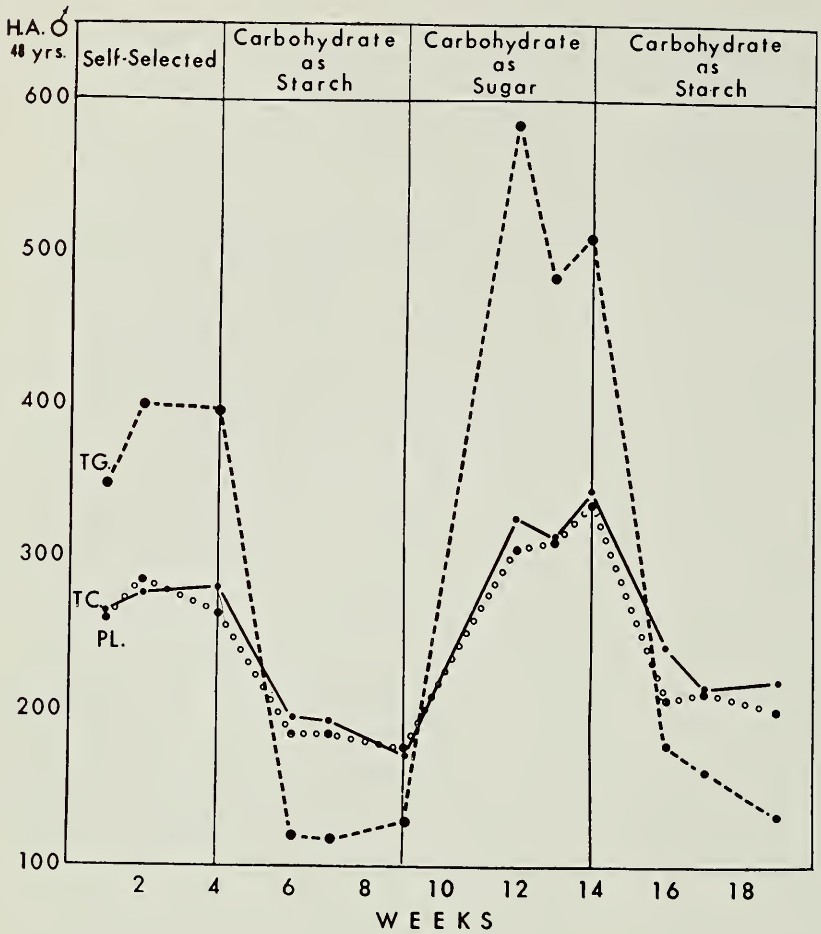


Figure 5

The effects of high proportions of sugar and of substituting starch for sugar in the diet upon the plasma total cholesterol (T.C.), phospholipid (P.L.), and triglyceride (T.G.) concentrations in a 48-year-old male with peripheral arterial insufficiency. (From Kuo and Bassett. See Ref. 32.)

very properly be asked: What should a man eat?

In spite of the complexity of the subject certain guide lines may be drawn. It seems clear that there is an increasing amount of coronary and other atherosclerotic disease in the United States. It is also well documented that the American people eat more saturated fat and more refined sugar than any other area in the world. That this is not an ethnic problem is indicated by the report that Yemenite Jews[41] after 20 years in this country eating the so-called American diet have higher blood lipids and more atherosclerosis than their counter-parts in Israel.

On the other hand, Taylor[47] recently reported that the Masai in Africa who eat a high cholesterol diet — largely meat, blood and fermented milk — have low serum lipids and very little atherosclerosis. This might be explained on the basis of low total calories, low carbohydrate intake and active exercise except that adjacent tribes eating a similar diet have a very high rate of atherosclerosis. Some individuals, therefore, may be more coronary prone than others, perhaps because of heredity and perhaps because of individual characteristics. Chereakin et al[42] attempted to discover such individuals by determining their saliva activity on starch, calling it the dextrinization time; the shorter the time, the more prone to coronary disease. Further investigation in this field is suggested. Some persons with very high serum lipids have very little evidence of atherosclerosis.

Nevertheless the following conclusions may be made. The American man and perhaps the post-menopausal woman should avoid eating excess total calories. If more than a marginal caloric intake is needed the fat should be largely but probably not entirely polyunsaturated. Polyunsaturated fats have high iodine values (85-144) and the saturated low iodine values. Mono-unsaturated fats fall somewhere in between. Most dairy fats are saturated and at the same time contain medium chain triglycerides, have low iodine values and are rapidly absorbed. Coconut oil is especially highly saturated. Brown, Farrand and Page have described a very practical modified fat diet.[46] Also in August, 1967, the American Diabetes Association, Inc., and the American Dietetic Association issued a chart for use in fat-controlled diets. The American man should also restrict refined sugar and alcohol.

The following is a sample of such a recommended diet of approximately 2000 calories.

1. Protein 90 gm or 17% of total calories. Large portion should be poultry, fish and skim milk. Trim fat off of meats such as beef, pork, lamb.

2. Fat 85 gm or 37% of total calories. The majority of the fat should consist of corn oil or safflower oil and nuts to replace the medium chain fatty acids found in milk, cream, butter and most cheese and to reduce consumption of other saturated fats found especially in meat fat, and coconut oil, and high cholesterol foods such as egg yolk and chocolate.

3. Carbohydrate 225 gm or 44% of total calories consisting largely of starch to replace cane suger and excess fruit.

4. Restrict alcohol.

Fats (P/S 1.5 or 2) may be increased and carbohydrates calorically decreased if desired.

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PLASMA LIPIDS IN ATHEROSCLEROSIS

• **Current research is presented which implicates the consumption of simple carbohydrates as an important etiologic factor in the production of hyperlipidemia (hyperlipoproteinemia) often associated with atherosclerosis.**

Peter T. Kuo, M.D.

Plasma Lipids in Atherosclerosis

Atherosclerosis and its complications have continued to be the major causes of morbidity and mortality. For more than 60 years, the subject of hyperlipidemia (hypercholesterolemia and hyperglyceridemia) and ischemic heart disease has aroused much interest, stimulated intensive investigation and generated considerable controversy within the medical profession. Much of this controversy may stem from the fact that until lately, little effort has been made to classify clinical hyperlipidemias in terms of their genetic types and metabolic abnormalities. While it has been customary to correlate either serum cholesterol or triglyceride or Sf 10-20 lipoprotein with atherosclerosis, current emphasis is upon the determination of plasma lipoprotein profile or at least the serum lipid pattern in the evaluation of clinical hyperlipidemic states. Information obtained from these studies, strongly implicates a disturbance in carbohydrate metabolism as the basis for several types of hyperlipidemia (hyperlipoproteinemia) that are frequently demonstrable in atherosclerotic patients.

Major Lipoprotein Classes in the Plasma

Lipids are rendered soluble for transport in the body fluids by binding with plasma proteins to form lipoproteins. They are classified into the high density alpha (α), and the low density beta (β) lipoproteins according to their source and immunological and physical chemical properties. Young females with increased α-lipoproteins are believed to be relatively immune to the development of coronary artery disease. Therefore, in discussing elevated serum lipids and atherosclerosis, we are dealing primarily with the beta group of lipoproteins. In most clinical conditions, it would suffice to subdivide the β group into: (a) low density, beta; (b) very low density, pre-beta; and (c) chylomicron. This simplified form of lipoprotein classification is shown in Table 1.

Isolation of Plasma Lipoproteins

The major plasma lipoprotein fractions of a given plasma sample can be readily separated by ultracentrifugal flotation in media of different densities. Table 2 shows: (1) the lightest chylomicrons (Sf $>$ 400) can be promptly isolated at the native plasma density (d= 1.006) by ultracentrifugation for 20-30 min; (2) the very low density, pre-beta (d $<$ 1.006) is separated in the native plasma density after 18-20 hours spin; (3) the low density beta- lipoproteins are floated at density 1.063; and (4) the high density alpha-lipoproteins are isolated after the density of the plasma has been raised to 1.21. Each of these lipoprotein fractions exhibits a characteristic migration rate and pattern on paper electrophoresis. Electrophoretograms of the isolated α-lipoproteins and of each of the three types of β- lipoproteins are shown in Figure 1.

Dr. Kuo is an Associate Professor of Medicine, School of Medicine, University of Pennsylvania, Philadelphia.

From the Cardiac Section of the Department of Medicine, the Robinette Foundation for Cardiovascular Research, and the George S. Klump Laboratory, Hospital of University of Pennsylvania.

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TABLE 1

MAJOR PLASMA LIPOPROTEIN CLASSES

1. High Density
    a. Alpha-lipoproteins
2. Low Density
    a. Low density Beta-lipoprotein
    b. Very low density Pre-beta-lipoprotein
    c. Chylomicron

The fastest anodal moving α band is rather diffuse, representing a mixture of at least three types of α-lipoproteins each with slightly different size and density. The β band is fairly narrow and discrete. The pre-beta with its heterogeneous particles is diffusely spreadout over the paper strip, starting from the point of application trailing forward (anodal) to a dark zone in front of the beta. The bulk of large charge-poor chylomicrons shows little or no mobility in the electrical field and remains stationary at the origin.

Phenotyping of Hyperlipoproteinemias by Paper Electrophoresis

The study presented in the previous section indicates that by the application of this technique, it would be feasible to separate the fasting plasma lipoproteins of any given patient to obtain a pattern which is characteristic of his genetic and metabolic background. Patterns obtained from healthy controls and patients with various types of hyperlipoproteinemia are shown in Figure 2. Plasma lipoprotein electrophoretogram of a healthy normolipemic subject after 12-14 hour fast (Figure 2a) shows a diffuse fast moving α band and a sharp and dark β band behind it. Sample from a patient with Type I hyperlipoproteinemia containing high plasma chylomicrons concentration is shown in Figure 2b. Pattern in Figure 2c with a dark and widened β band is characteristic of patients with Type II hyperlipoproteinemia. Figure 2d shows the electrophoretogram of a patient with markedly elevated pre-beta fraction with small amount of chylomicron at the origin* (Type IV disease). Pattern of a patient with Type III hyperlipoproteinemia with increases of broadened β fraction is shown in Figure 2e. The Type V pattern with increases in both chylomicrons and pre-beta lipoproteins is shown in Figure 2f.

PLASMA LIPOPROTEIN FRACTIONS

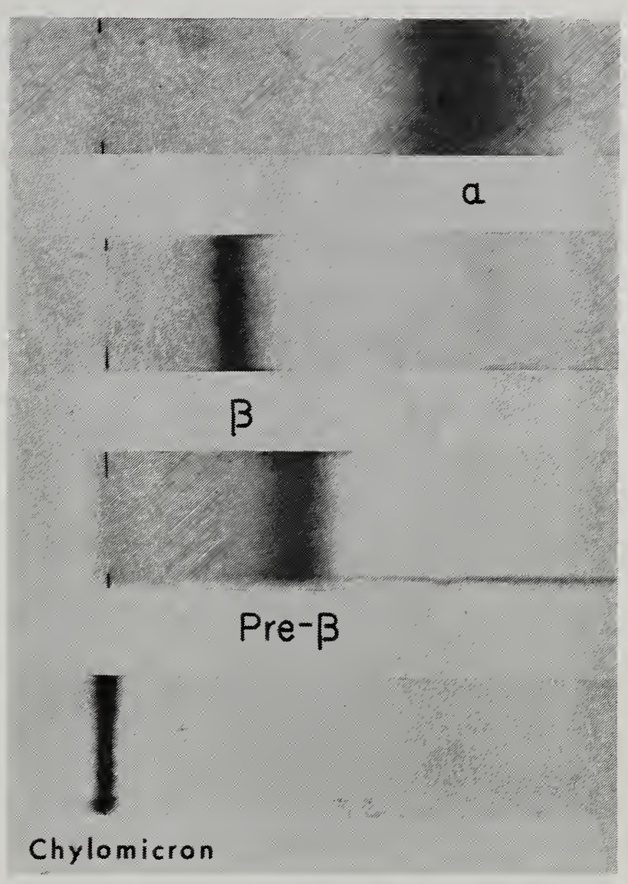

Figure 1. Plasma lipoprotein electrophoresis of plasma lipoproteins isolated by density gradient flotation with ultracentrifugation. From top to bottom the migration characteristics of α-, β-, Pre- β-, lipoproteins and chylomicrons are shown.

Schema of Plasma Lipoproteins

Since most laboratories have facilities to determine serum lipids rather than lipoproteins, a study of the schematic presentation of the different plasma lipoproteins particles shown in Figure 3 should be helpful in correlation of clinical hyperlipoproteinemias with the recognized types of hyperlipidemia. The schema shows the relative sizes and the protein and lipid compositions of the α and the three types of β-lipoprotein particles. (1) The high density alpha is the smallest of all lipoprotein particles, and has the highest protein

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*Chylomicronemia is not characteristic of Type IV disease, but is frequently demonstrable when there is a marked Pre-β increase.

TABLE 2
ISOLATION OF PLASMA LIPOPROTEIN FRACTIONS BY ULTRACENTRIFUGATION

Density of Medium used for Isolation	Lipoprotein Classes
Plasma (d = 1.005)	Chylomicron
d = 1.006	Pre-beta-lipoproteins
d = 1.019 - 1.063	Beta-lipoproteins
d = 1.063 - 1.21	Alpha-lipoproteins

and lowest lipid content. (2) The low-density β-lipoprotein is the smallest size particle in the β group and has a high cholesterol and rather low triglyceride content. Its increase will result in "isolated" hypercholesteremia and a relatively normal serum triglyceride concentration. (3) The medium-sized pre-beta, very low density lipoprotein is rich in all three major serum fractions with some preponderance in triglycerides. Therefore serum cholesterol, phospholipid and triglycerides with some preponderance in triglyceride are all elevated in hyperpre-beta-lipoproteinemia. Both the beta and pre-beta fractions are endogenously synthesized while the large and light chylomicrons are derived chiefly from ingested fats. (4) The very high triglyceride content of chylomicrons would account for the serum lipid pattern of marked hypertriglyceridemia with rather modest elevation of serum cholesterol and phospholipid as seen in patients with "fat-induced" hyperglyceridemia.

Serum Lipid Patterns

Simultaneous measurement of three major serum lipid fractions — cholesterol, phospholipid and triglyceride — in a given sample may be used to construct a serum lipid pattern for classification of hyperlipidemia and to learn by inference of the type of hyperlipoproteinemia involved. Normal serum lipid pattern is shown in Figure 4a. The pattern of marked hypertriglyceridemia and relatively minor changes in cholesterol and phospholipid values suggestive of exogenous "fat-induced" hyperchylomicronemia (Type I hyperlipoproteinemia) is shown in Figure 4b. Figure 4c shows the characteristically "isolated" elevation of cholesterol level with little involvement of other lipid fractions indicative of hyper-beta-lipoproteinemia found in patients with essential familial hypercholesterolemia (Type II disease). Increases in plasma pre-beta lipoprotein concentration (Types II, IV and V disease) are reflected in lipid patterns showing elevations of all three major serum

TABLE 3
CORRELATION OF HYPERLIPIDEMIAS WITH HYPERLIPOPROTEINEMIAS

Hyperlipidemias	Hyperlipoproteinemias (Fredrickson and Lees)
1. Hypercholesterolemia	
Essential Familial Hypercholesterolemia	Type II
2. Hyperglyceridemia	
a. Exogenous "Fat-induced"	Type I
b. Endogenous Carbohydrate-Sensitive ("induced")	
Serum Cholesterol > 250 mg. %	Types III, IV and their Type II mixtures
Serum Cholesterol < 250 mg. %	Type IV
Super-imposed with Chylomicrons	Type V

lipid fractions (cholesterol, phospholipid and triglyceride). This basic pattern may vary from one patient to another depending on the pre-beta concentration and whether there is also an increase in beta fraction and chylomicrons in the same sample (Figures 4d-e).

Correlation of Hyperlipidemia with Hyperlipoproteinemia

On the basis of the understanding presented above, a correlative study of hyperlipidemia with hyperlipoproteinemia is presented in Table 3. Understanding of the interrelationship between serum lipid patterns and the predominant plasma lipoprotein species is useful in the evaluation of clinical hyperlipidemias.

Endogenous "Carbohydrate Sensitive Induced" Hyperglyceridemia (Types III and IV Disease)

The frequency distribution of hyperlipidemia and hyperlipoproteinemia among a series of 334 atherosclerotic patients is shown in Table 4. It is worthwhile to emphasize that the great majority of atherosclerotic patients were found to have endogenous carbohydrate "sensitive" or "induced" hyperlipidemia (Types II, IV or V hyperlipoproteinemia) and none of the patients in this series has the exogenous "fat induced" Type I disease. A similar preponderance in endogenous carbohydrate sensitive hyperglyceridemia (Types III and IV disease) is also demonstrated in a small group of patients who were admitted to the hospital for treatment of occlusive vascular disease involving the lower extremities. The distribution of the different types of lipid abnormalities among a series of 78 patients with peripheral vascular disease is shown in Table 5.

Carbohydrate Metabolism of Patients with Endogenous Hyperlipidemia (Types III, IV or V Disease)

1. Some of the patients with Types III, IV, and V disease may show elevated blood glucose level in the fasting state or an abnormal response to glucose tolerance test. In general, the mean glucose levels obtained in the fasting state and at intervals up to five hours following oral glucose in these patients are higher than the mean values observed in a group of healthy normolipemic subjects of the same age and body build, although their mean response curve may lie within the range of normal.

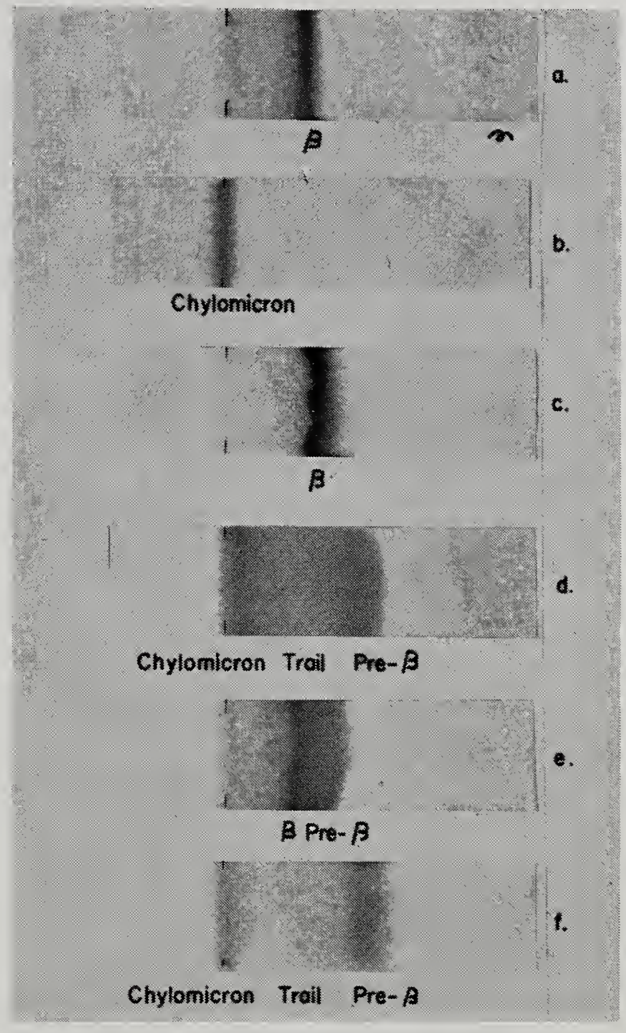

Figure 2. Plasma lipoprotein electrophoresis patterns of: (a) healthy normolipemic subject; (b) patient with Type I hyperchylomicronemia (exogenous "fat-induced" hyperglyceridemia); (c) patient with Type II hyperlipoproteinemia (essential familiar hypercholesterolemia); (d) patient with marked Type IV hyper-prebeta-lipoproteinemia (endogenous "carbohydrate induced" hyperglyceridemia); patient with Type III hyperbeta and hyper-pre-beta-lipoproteinemia; Type V patient with hyper-pre-beta-lipoproteinemia and hyperchylomicronemia.

2. The basal serum insulin-like activity and immuno-reactive insulin level of hyperlipidemics are considerably elevated above those of healthy control subjects. In

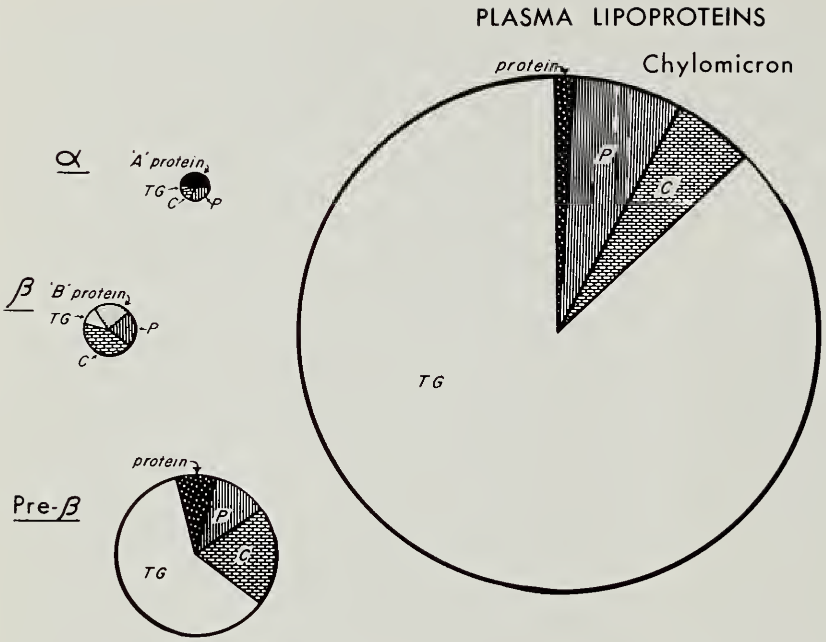

Figure 3

Schematic presentation of α- and β- lipoproteins: their relative sizes; lipid and protein compositions.

TABLE 4
Distribution of Different Types of Hyperlipidemia
Among 334 Atherosclerotic Patients

Types of Hyperlipidemias	Number of Patients	%
1. Hypercholesterolemia, Familial (Type II Hyperlipoproteinemia)	34	10.2
2. Hyperglyceridemia		
A. Endogenous carbohydrate sensitive (induced)		
a. Serum Cholesterol $>$ 250 mg. % (Types III, IV and their Type II mixtures)	226	67.7
b. Serum Cholesterol $<$ 250 mg. % (Type IV disease)	74	22.1
B. Exogenous Fat induced (Type I disease)	0	0
Total	334	100.0

addition, abnormally high serum insulin responses (measured in terms of serum insulin-like-activity and immuno-reactive insulin) are frequently demonstrable in these patients following oral ingestion of a carbohydrate test meal.

Treatment of Hyperlipoproteinemias in Atherosclerosis

The data presented in Tables 4 and 5 suggest a close association between increased endogenous lipogensis (hyperbeta- and hyperpre-beta- lipoproteinemia Type II and Types III, IV and V disease) and atherosclerosis. There is reason to believe that therapeutic programs that are effective in controlling the abnormal metabolism may help ameliorate not only the hyperlipoproteinemia but also the progression of atherosclerosis. (a) The exact mechanism in Type II disease (hypercholesterolemia, familial) is not well understood. A defect in the regulatory mech-

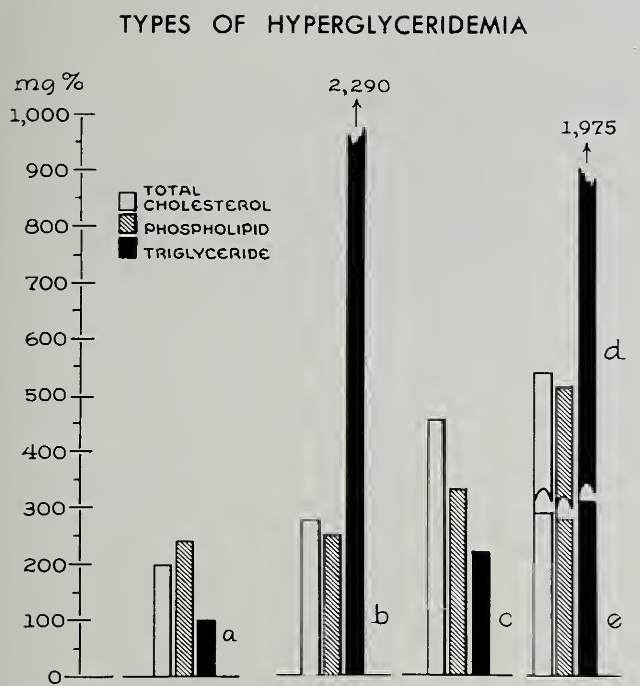

Figure 4. Serum lipid pattern of: (a) healthy normolipemic subject; (b) patient with exogenous fat-induced hyperglyceridemia; (c) patient with essential familial hypercholesterolemia; (d) patient with endogenous "carbohydrate-induced" hyperglyceridemia, marked; and (e) mild to moderate degrees of endogenous hyperlipidemia (carbohydrate sensitive or induced).

anism between blood and tissue cholesterol levels has been proposed to explain the persistance of hypercholesterolemia in such patients. So far, most of the therapeutic efforts have not been too rewarding. Very recently, we found that a low cholesterol and simple low carbohydrate diet combined with the administration of cholestyramine (Questran) or nicotinic acid has achieved significant lowering of the obstinate hypercholesteremia in some Type II patients. Only time can tell whether the change in serum cholesterol level would actually retard the progression of atherosclerosis in these patients. (b) Table 6 lists the major features of the sugar restrictive, relatively low carbohydrate diet for treatment of endogenous "carbohydrate-induced" hyperglyceridemia - Types III, IV and V disease. The rationale for making these changes are discussed in the following: (1) The 100-125 bm/day carbohydrate intake is actually not much lower than the amount of dietary carbohydrate recommended by the National Academy of Science of the National Research Council. Thus, the chief purpose of this regimen is merely to restrict the use of excessive carbohydrate calories. (2) We found through controlled metabolic studies that for practical purposes, it is necessary to avoid all sugars including fructose (fruit juices and fruits with high fructose content), and sugar containing foods because of their carbohydrate

TABLE 5
DISTRIBUTION OF DIFFERENT TYPES OF HYPERLIPIDEMIA
AMONG 78 PATIENTS PERIPHERAL VASCULAR DISEASE

Types of Hyperlipidemia	Number of Patients	%
1. Hypercholesterolemia, Familial (Type V hyperlipoproteinemia)	2	2.6
2. Hyperglyceridemia		
A. Carbohydrate sensitive ("induced")		
a. Serum cholesterol > 250 mg. % (Types III, IV and their Type II mixtures)	38	48.7
b. Serum cholesterol < 250 mg. % (Type IV disease)	38	48.7
B. Exogenous "Fat-induced" (Type I disease)	0	0
Total	78	100.0

TABLE 6

DIETARY MANAGEMENT OF CARBOHYDRATE-SENSITIVE (Induced) HYPERLIPIDEMIA *(Types III, IV and V Hyperlipoproteinemia)*

1. Limit total daily carbohydrate intake to about 125 gm/day.
2. Carbohydrate calories to be supplied almost entirely by complex carbohydrates (starches).
3. Avoid all sugars (sucrose, lactose, and fructose), sugar-containing foods and fruit juices.
4. Restrict fats and oils with high short and medium chain fatty acid content (butter fat and coconut oil).
5. Sharply reduce alcohol consumption.

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calories, their high lipogenic property, and their low satiety value. The studies also suggest that in most people, the bulkiness of starchy foods tends to lessen the likelihood of consuming excessive carbohydrates, unless snacks of dehydrated starches are used freely. (3) Fats and oils (butter fat and coconut oil) with high short and medium chain fatty acid contents are restricted because of their direct absorption into the liver and their participation in intrahepatic synthesis of fatty acids and cholesterol.

(4) Through a combination of increasing caloric intake, and stimulating hepatic and adipose lipogenic and lipolytic mechanisms, alcohol can exert a potent effect upon lipid metabolism of many patients with endogenous hyperlipidemia to induced and sustain hyperlipemia.

Summary and Conclusion

(1) From these discussions, it is apparent that neither serum cholesterol nor triglyceride determination is adequate for the proper evaluation of hyperlipidemia in atherosclerotic patients. When performed under standardized conditions, plasma lipoprotein analysis — or in its place, serum lipid pattern determination — is frequently helpful in providing the physicians with necessary information on the basic genetic and metabolic abnormalities of the patient.

(2) Up to the present, the assumption has been that elevation of serum lipids may act by filtration or similar processes to produce atherosclerosis. However in light of the recent investigations the possibility of certain abnormal metabolic states responsible for the production of both hyperlipoproteinemia (as reflected in hyperlipidemia) and atherosclerosis should also deserve our consideration.

(3) From the therapeutic standpoint, it is important to be able to differentiate exogenous "fat-induced" hyperglyceridemia from: (a) endogenous "carbohydrate sensitive or induced" hyperglyceridemia (Types III and IV disease) (b) genetically determined, essentially familial hypercholesteremia (Type II disease). These latter types are known to bear close association with atherosclerosis.

(4) Preliminary data from our laboratory strongly implicate hyperinsulinism in endogenous hyperlipoproteinemia and weight gain in many atherosclerotic patients.

(5) The response of patients with exaggerated endogenous lipogenesis to sugar restrictive diet without excessive carbohydrate intake has been encouraging. Long-term follow up studies made on a large number of patients are needed for proper evaluation of its effect upon the natural course of atherosclerosis.

The effect of several new hypolipidemic drugs upon the serum lipids (especially cholesterol and triglyceride) and human atherosclerosis is under intensive investigation. At the present, the best indication for their use is in young patients with Type II hyperbetalipoproteinemia (familial hypercholesteremia), because of the known susceptibility of these patients to the development of coronary artery disease. It will take time to determine the usefulness of these drugs in retarding the progression of atherosclerotic process.

ACKNOWLEDGEMENT

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A COMPARISON OF LINCOMYCIN AND PENICILLIN IN THE TREATMENT OF GROUP A STREPTOCOCCAL INFECTIONS: Speculation on the "L" Form as a Mechanism of Recurrence

• The "L" form as a mechanism of recurrence is discussed and the possibility that the lower recurrence rate of lincomycin is related to its reported effectiveness against both the negative and "L" forms of the Group A Beta-hemolytic streptococcus is considered.

Martin F. Randolph, M.D.
Raymond M. DeHaan, M.D.

The persistence and recurrence of bacterial infection despite adequate antibiotic therapy has been theoretically explained in part by the *in vivo* production of bacterial variants (persisters) or L-forms.[1,2] The production of L-forms in an experimental animal[3] and a recovery of L-forms from human clinical specimens have been supportive evidence for this hypothesis.[4,5] McDermott's[1] and later Smadel's[6] suggestion that persisters might be protoplasts stimulated the interest of clinical people in the possible role of these osmotically fragile bodies in the process of recurring infection; the L-forms affording prolonged persistence of the agent and their recurrence into bacteria causing relapses. Evidence has been provided to substantiate this theory in some reports on chronic pyelonephritis,[4] bacterial endocarditis,[8] tubercular meningitis,[9] and aseptic meningitis.[10]

Penicillin continues to be the drug of choice in the treatment of Group A beta-hemolytic streptococcal infection.[11,12] Yet a most serious limitation in clinical effectiveness exists in a clinical or bacterial recurrence rate within 60 days of approximately 20% when penicillin G or V is given orally for 10 days;[11–13] when given parenterally in the form of Benzathine penicillin G (Bicillin), the recurrence rate may be as low as 5.6%.[14] The much lower recurrence rate with Bicillin has been ascribed by Breese[13] and by Stillerman[12] to the persistence of effective levels of penicillin G in the serum beyond the 10-day period obtained with oral medication. More favorable recurrence rates or increased effectiveness have not been attained in the treatment of streptococcal infection in children regardless of penicillin dosage or the regimen used.[15]

Two principal explanations have been offered for recurring streptococcal infection following recommended penicillin therapy:[11] (1) Reinfection: Prompt and effective penicillin therapy discourages streptococcal antibody production, the patient upon recovery remaining susceptible to reinfection; (2) Persistence of infection in spite of adequate penicillin therapy — infection is not eradicated but merely suppressed, persisting organisms becoming manifest in a clinical or bacterial recurrence within two months after therapy is discontinued.[11] The chance of a given recur-

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Dr. Randolph, F.A.A.P., F.A.A.A.S., is with the Department of Pediatrics, Yale University School of Medicine. Dr. DeHaan is Chief, Clinical Infectious Diseases, the Upjohn Company, Kalamazoo, Michigan.

TABLE I
Study Population

	Group				Chi-Square Significant at the 5% Level
	Penicillin		Lincomycin		
	No.	%	No.	%	
Total Number of Patients	267	100	258	100	
Age					
Pre-school (18 mos. to 5 yrs.)	59	22.1	36	13.9	Yes
School Age (5 yrs. to 14 yrs.)	208	77.9	222	86.1	
Sex					
Male	144	53.9	143	55.4	No
Female	123	46.1	115	44.6	

rence of streptococcal infection being due to reinfection with a different organism or to recurrence with the same organism is about equal.[16]

If persisters are protoplasts and if in fact protoplasts contribute to the recurrence of infection, then this may be demonstrated by one of two methods: (1) The use of an antimicrobial to which the streptococcal protoplast is sensitive; the destruction of the protoplast would be expressed in a lower recurrence rate. (2) The cultivation of L-forms. We chose the former since the cultivation of L-forms is a highly complex procedure much beyond the competence of the office laboratory.

Lincomycin is an inhibitor of protein synthesis and is effective intracelluarly at the ribosome level destroying the bacterial cell and its variants metabolically.[17] Clinical studies have found it to be safe and to be effective against a wide range of gram-positive organisms.[18] The studies of Schaffer,[19] Breese,[20] and Jackson[21] have found lincomycin to be at least as effective as penicillin in the treatment of beta-hemolytic Group A streptococcal infection. *In vitro* and *in vivo* evidence has shown the protoplasts of Group A streptococci to be sensitive to lincomycin while being resistant to penicillin.[22]

Method

Study Population

The study began on March 1, 1965, and terminated October 1, 1967. Children aged 18 months to 14 years were selected for study if they had a sore throat, a positive culture for BHS Group A, and any three of the following acceptable clinical signs of BHS Group A infection:[12] (1) fever, (2) marked redness or edema of the oral pharynx, (3) pharyngeal or tonsillar exudate, (4) petechiae with redness of the oral pharynx, (5) enlarged, tender, anterior cervical nodes, (6) scarlet fever rash, (7) nasal speech without rhinorrhea. A culture was considered "positive" if 10% or more of the colonies on a streaked blood agar plate were typical. Five hundred twenty-five patients qualified for admission to the study. Their age and sex are given in Table I.

Reason	Medication	
	Number on Penicillin	Number on Lincomycin
Refused Medication	3	4
Took Medication Irregularly	27	28
Took Other Antibiotics	2	0
Negative Assay of Urine	15[†]	20[†]
Drug Intolerance	2	0
Drug Resistant	0	0
BHS Non-Group A	9	9
TOTALS	43	41

TABLE II

Patients Excluded from the Study. (84 Patients)

[†] These patients are included among those in "Took Medication Irregularly" group.

Bacteriology

All cultures were taken by one man. Dry, sterile, cotton-tipped swabs were rubbed over the tonsillar and posterior-pharyngeal area and then rotated over one-quarter of the surface of a blood agar plate containing 10% sheep blood and were streaked immediately over the entire plate with a wire loop. Plates were incubated for 18 to 24 hours at 37°C and re-read after 24 hours. Growth of Group A beta-heolytic streptococci was graded 1+ to 4+; 1+ to 2+ (10—50% of the colonies) was recorded as weekly positive and 3+ to 4+ (50—100% of the colonies) as strongly positive. Bacitracin discs, Taxos A (BBL), were applied to the subculture to differentiate Group A streptococci. Sensitivity of the isolated colony to both penicillin and to lincomycin were determined by appropriate antibiotic discs.

Management

Patients who were mildly or moderately ill received supportive care until the results of the cultures were reported. Those who were severely ill at the initial visit were treated immediately after the throat culture was taken. If the latter was negative, or if fewer than 10% of the colonies were BHS Group A, the patient was removed from the study population. Selection of the antibiotic, either penicillin or lincomycin, was determined by number from a randomized list.

Administration and Dosage

Penicillin G (Sugracillin), 250,000 units per 5 cc, and lincomycin, 250 mg per 5 cc, were dispensed free to the parents in 60 cc bottles. The dose was the same for both antibiotics and for all ages: 5 cc (by measuring cup) four times a day, one hour before meals and at bedtime. Children attending school were provided with one-half ounce screw-top bottles. Teachers were instructed by written note to excuse the child one hour before lunch unless recess was at an appropriate time to take his medicine. The patient was instructed to take all the antibiotic and this included rinsing the bottle once with water. The parent was asked to inspect the bottle each day after school. Parents were instructed to return every two days throughout the ten days of therapy and to: (1) bring in a midstream, voided urine specimen taken at bedtime and refrigerated; (2) return the "used" bottle; and (3) report on their child's well-being. Return office visits were arranged for the second day of treatment and again four weeks later. During these visits, blood was drawn for ASO titers and the sera were stored at —20C; the child was fully examined, and throat cultures were taken on the patient and on immediate

TABLE III
Acceptance of Penicillin and Lincomycin by Children with Group A Streptococcal Infection

	Medication			
	Penicillin	%	Lincomycin	%
Total Number of Patients	297	100	290	100
Refused Antibiotic	3		4	
Took Drug Irregularly	27		28	
Patient Acceptance	267	90	258	89
"Take" Confirmed by *Sarcina lutea* Method	267	100	258	100
Confirmed "Take" Rate	267	90	258	89

members of the family. In addition, throat cultures were taken on the patient and contacts once a week beginning one week after the completion of therapy for the duration of followup. Routine analysis and cultures were performed on the urine specimens obtained at two-day intervals during the ten-day period of treatment, and the specimens were also assayed for the presence of antibiotics through the inhibition of growth of the test organism, *Sarcina lutea.*[23] This method is known to be extremely sensitive. As little as 0.005 units of penicillin per ml may inhibit its growth.[23] A final routine urine analysis and quantitative urine culture was done on the 30-day visit. (Urine cultures were not pertinent to the present study but were a part of a continuing study of urinary tract infection in children).

A child was considered to have taken sufficient medication if, in our judgment, they received 90% of the antibiotic prescribed and if this was corroborated by two urine assays two or more days apart showing inhibition of the test organism, *Sarcina lutea.*

Children were removed from the study if they failed to receive adequate therapy or if they received additional antibiotic therapy during the follow-up period of 40 days.

The antibiotics were compared using the following criteria: (1) a clinical response at 24 hours and 48 hours, and (2) the rate of cure up to 40 days from the onset of treatment. Data on the clinical response were partially obtained from the answers given by the parents 18 to 24 hours after the onset of antibiotic treatment to a fixed set of questions concerning temperature, soreness of throat, size and tenderness of anterior cervical glands, nasality of voice in the absence of rhinorrhea, disappearance of scarlitiniform rash, and general disposition. These were confirmed by physical findings and throat cultures after 48 hours of treatment. The final rate of cure was based on the clinical and bacterial recurrences in the 40-day follow-up period dated from the onset of treatment.

Patient response was classified, according to Breese,[20] into one of four categories: (1) "cured" children were those with a good immediate response to therapy and three or more throat cultures negative for streptococci Group A in the 40-day follow-up period; (2) recurrent cases were those who, during the follow-up period, developed a positive culture

TABLE IV
Urine Assay for Penicillin and Lincomycin

	Number of Patients Assayed†	Number of Specimens Assayed	Number of Negative Assays	%
Penicillin	301	810	20	2.4
Lincomycin	290	912	211	23.1

† Eighteen patients were found to have "non-Group A" streptococci and were not assayed (Table II).

and an illness consistent with streptococcal Group A infection; (3) carriers were children who were found to have positive cultures during a 40-day follow-up period while appearing clinically well; and (4) failures included both recurrent cases and carriers.

Results

Six hundred nine patients were enrolled in the study, 84 of whom were removed for reasons detailed in Table II. Of the 84 children removed from the study, 64 were excluded because of irregularities in office visits or in the acceptance of penicillin or lincomycin. The remaining 20 patients were removed because of drug intolerance (2) and because their streptococcal infection proved to be non-Group A (18) (Table II).

Acceptance of Penicillin and Lincomycin

Two objective methods were used to determine whether a child received his medication. One was to estimate the amount of medication he presumably took from the returned bottle, and the second was a qualitative urine assay for antibiotic. Penicillin and lincomycin were accepted about equally well, our "take rate"[23] (89.5%) comparing favorably with the rate of other investigators in the private practice setting[21] (Table III). This was undoubtedly dependent on the frequent contact of parent and physician and the active participation of the parent in the child's therapy; ie, the need to return to the office every two days to renew medication, report on the child's illness, and to bring in a urine specimen.

Penicillin is largely excreted in the urine. The renal route is not a major route of excretion of lincomycin, however. It is estimated that only three to five percent of the oral dose is excreted in the urine in the 24-hour period after oral dosing.[24] It was not surprising, therefore, that we found the excretion of penicillin quite uniform, while that of lincomycin was less uniform and rather erratic (Table IV). Nevertheless· the assay was simple to perform and was invaluable when a history was suspect; ie, in those patients not taking any medication and, by repeated application, in those taking medicine irregularly. In Table II, the number of negative assays is fewer than the number of patients listed as "took medicine irregularly." This is so because this kind of patient often failed to cooperate by bringing in a urine specimen. Final data show that all children retained in the study had two or more positive urine assays in the ten-day course of therapy (Table III).

Age

Of those patients retained in the study, 430 (82%) were aged 5 to 14 years and 95 (18%) were of pre-school age. Random selection resulted in a somewhat dissimilar distribution of patients in the two treatment groups (Table I). However, at the conclusion of the study, cure rates were corrected for age; and it was found that these were independent variables.

Reactions	Group			
	Penicillin		Lincomycin	
	No.	%	No.	%
Anaphylaxis	0	0.0	0	0.0
Diarrhea	10	3.7	58	22.5*
Nausea	1	0.4	0	0.0
Vomiting	2	0.8	0	0.0
Neurotoxic	0	0.0	0	0.0
Dermatologic	3	1.1	1	0.4
TOTALS	16	6.0	59	22.9
No Reactions	251	94.0	199	77.1

TABLE V

Adverse Reactions

* $p<0.05$

Sex

The sexes were about equally distributed; 54.7% were boys.

Diagnosis

Of the patients 56.1% (295) were diagnosed as having acute tonsillitis or pharyngitis, approxmiately one-half (41%) being of the exudative type. One hundred forty-seven patients were found to have acute anterior cervical adenitis; the remaining children had adenoiditis (69 patients) and purulent otitis media (14 patients). The children in these diagnostic categories were evenly distributed in the two (lincomycin and penicillin) groups (Table VI).

It should be emphasized that these children were impressively ill. This impression gains support from the large number of children (in both groups) with the exudative type of pharyngitis and tonsillitis and the large number with acute involvement of their cervical nodes. Those patients with adenoiditis were "ill" with a striking adenoid facies and very nasal speech. Pus could often be collected on digital examination of the adenoid area.

Cultures

Further support to an impressive degree of illness in both groups was given by the common occurrence of the strongly positive throat culture. Of the primary cultures 84.4% were strongly positive (3+ to 4+) for Group A beta-hemolytic streptococci. The remainder were classified as weakly positive (1+ to 2+). The true figure for the strongly positive culture is probably higher when one reflects on the resistance of many children to the procurement of the throat culture. Both groups had a similar percentage of strongly positive cultures. All Group A streptococci were found to be sensitive to both antibiotics by the disc method.

ASO Response

A two-tube rise in anti-streptolysin-O-antibody occurred in less than one-third of the patients in both the lincomycin and penicillin groups. This relatively low incidence of antibody response is thought to reflect early treatment of infection and its prompt response to therapy.[11,12]

Results of Treatment

The immediate response to either antibiotic was essentially the same: patients were dramatically improved in 12 to 24 hours, three-day throat cultures were negative in all but one patient on lincomycin and five patients on penicillin, symptoms terminated within 48

TABLE VI
Clinical Comparison*

	Group			
	Penicillin		Lincomycin	
	No.	%	No.	%
Number of Families with Positive Throat Cultures	55	20.6	64	24.8
Tonsils Out	30	11	24	9.7
Strongly Positive Throat Cultures (3+ to 4+)	230	84.2	224	84.3
Nature of Streptococcal Illness				
Tonsillitis	14	5.2	12	4.7
Pharyngitis	74	27.7	75	29.0
Adenoiditis	37	13.9	32	12.4
Anterior Cervical Adenitis	75	27.7	72	27.9
Exudative Tonsillitis	51	19.0	40	15.5
Exudative Pharyngitis	12	5.0	17	6.6
Purulent Otitis Media	4	1.5	10	3.9

* No item is significant at the 5% level of confidence.

hours in most children and the majority returned to school or to full activity on the third day of treatment (Table VII).

Post-Treatment Period

In 57 of the 525 primary cases, Group A beta-hemolytic streptococci were found within a 40-day follow-up period. Ten of the children were aged 2 to 5 years, while 47 were 6 to 10 years of age. Thirty-two of the children were ill with their recurrences, while 25 were classified as carriers (Table X). The cure rate for the two antibiotics is shown in Table VIII.

Thus lincomycin was more effective than penicillin in eradicating the streptococcus from the pharynx. How many of the patients in either therapeutic group represented recurrences and how many re-infections could not be determined since typing of the streptococci was not available.

However, to further validate the apparent superiority of lincomycin over penicillin, two assessments were made in those patients having clinical recurrences: (1) the day of recurrence, and (2) the amount of Group A streptococcal growth in the throat culture on the day of recurrence. In Breese's experience, clinical relapse is more apt to occur soon after treatment is discontinued when the treatment is not adequate.[15] In addition, significant clinical recurrences are more likely to be associated with strongly positive than with weakly positive cultures.[13] Both of these ex-

TABLE VII
Clinical Response*

	Group			
	Penicillin		Lincomycin	
	No.	%	No.	%
Total Number of Patients	267	100.0	258	100.0
Treated within 48 hours	191	71.5	178	69.0
Treated within 96 hours	236	88.4	230	89.1
Termination of Symptoms				
Within 24 hours	111	41.6	107	41.5
Within 48 hours	199	74.5	194	75.2
Total Days of Illness (Patient Average)	1.74		1.63	
Positive Third-Day Cultures	5	1.9	1	0.4
ASO Titers				
Initial Elevation (Greater than 250 Todd units)	56/210	26.7	67/217	30.9
Convalescent Elevation (2 tube or greater rise)	59/200	29.5	54/194	27.8

* No item is significant at the 5% level of confidence.

aminations favored lincomycin. Table X shows that 16 patients in the penicillin groups had a clinical relapse within 28 days of the onset of therapy as opposed to 8 patients in the lincomycin group. When the throat cultures in both groups at the time of clinical relapse were compared quantitatively, there were 5 times as many strongly positive cultures in the penicillin group as in the lincomycin group.

Family Cultures

Cultures were taken on all family members at weekly intervals after the completion of 10-day therapy. Home exposures to re-infection were similar in the two groups (Table VI).

Adverse Reactions

Both drugs were well tolerated (Table V). Diarrhea was defined as any looseness of stool. It will be seen that this occurred in 22.5% of the children with lincomycin and in none of those children with penicillin. However, the diarrhea was never serious and cleared spontaneously without discontinuance of lincomycin. One child in the lincomycin group developed a rash which was inconsequential and did not necessitate discontinuation of therapy.

Complications

No patient developed fever or nephritis.

Discussion

Both penicillin and lincomycin emerge from

TABLE VIII
Results of Treatment

	Group			
	Penicillin		Lincomycin	
	No.	%	No.	%
Clinical Recurrence	20	7.5	12	4.8
Carriers	17	6.4	8	3.1
Patient Failures with Positive Family Contacts	12	32.4	7	35.0
Total Patient Failures	37	13.9	20	7.9*
Patients "Cured"	230	86.1	238	92.1*
Complications (Suppurative and Non-Suppurative)	0		0	

* Chi-Square: Significant at the 5% level of confidence.

this study as effective agents in the immediate treatment of streptococcal infections in children. However, the ultimate effectiveness of these antibiotics as judged by the "cure rate" at the end of 40 days, the recurrence rate within 28 days, and the proportion of strongly positive cultures indicates that lincomycin is superior to penicillin when the latter is given orally.

A cure rate of 92.1% was achieved in children treated with lincomycin as opposed to one of 86.1% with penicillin. Lincomycin's cure rate is superior to that of any orally administered antibiotic and is comparable to rates obtained by other investigators using parental Benzathine penicillin G.[11,12] The high rate of cure with both antibiotics undoubtedly relates to a high "take rate," yet the difference between lincomycin and penicillin is significant at the 5% level in favor of lincomycin. Breese, in a study comparable to the present investigation achieved a cure rate lower than ours with penicillin, and one essentially the same with lincomycin.[20] His very low penicillin cure rate suggests that patient acceptance might have been at fault. Data from the two studies were combined using Cochran's criterion. The combined results show a difference in cure rate which is significant at the 0.002 level ($.002>p>.001$) (Table IX).

A clinical and bacteriologic recurrence rate (total patient failure rate) of 13.9% was obtained in the penicillin group while only slightly more than half this number of infections recurred in the lincomycin group ($p.<05$). The proportion is similar when the carrier state is omitted and only clinical recurrences are considered: 7.5% to 4.8% (Table VIII). The possibilities for reinfection at the community level are, of course, many. Such opportunities, however, should be in balance in two randomly selected groups in a private practice setting. In this regard, throat cultures taken weekly on all family members in both therapeutic groups revealed approximately equal exposure to reinfection (Table VI).

TABLE IX

Therapeutic Results in Streptococcal Infection with Lincomycin and Penicillin
A Comparison of Two Studies

	Breese's Study[8]		Present Study		Combined Study	
	Penicillin G	Lincomycin	Penicillin G	Lincomycin	Penicillin G	Lincomycin
Number of Patients	102	100	267	258	369	358
	Percentages		Percentages			
Recurrence	12.7	11.0	7.5	4.8	33	24
Carriers	12.7	0.0	6.4	3.1	30	8
Other						
Nephritis (12th day)	0.0	1.0	0.0	0.0	0	0
Total Patient Failures	25.4	12.0 *	13.9	7.9 *	63	32
Cure	74.6[+]	88.0[+] *	86.1	92.1 *	306	326

† Author informs me of typographical error in original manuscript. These data are correct.
* Significant at the 5% level.

McDermott's theory of microbial persistence is a fresh approach to the problem of streptococcal recurrence.[1] Definitive experiments on the induction and survival of "L" forms in an infected *host*, however, have not yet been made. Nevertheless, precedents have been established in other types of infection for directing therapy to the "L" form variant when treatment of the bacterial phase resulted in recurrence. Thus, Guze and Kalmanson showed that *Streptococcus faecalis* "L" forms were produced *in vivo* during penicillin treatment of rats with *Streptococcus faecalis* pyelonephritis. The variants persisted after penicillin treatment and were eradicated by the simultaneous administration of penicillin and erythromycin.[7] Gutman and associates successfully treated a ten-year-old girl with *Proteus mirablilis* pyelonephritis with ampicillin and erythromycin. The disappearance of the "L" forms coincided with an 18-month cure of the child's pyelonephritis at the time of writing.[4] Kagan affected a cure of 12 families plagued with recurrent staphylococcus furunculosis using the combined effects of oxacillin and tetracycline. Kagan, speculating that the mechanism of recurrence was the "L" form, noted that oxacillin was initially effective in eliminating the staphylococcus, but that tetracycline was needed to destroy the "L" forms, avoid the recurrence of staphylococcus infection and produce a cure.[25]

Until the isolation of "L" forms is less complex and is suitable for routine hospital use, support for this hypothesis of bacterial recurrence must come from statistically derived clinical experience. In the present study while the number of streptococcal recurrences statistically favors lincomycin, the number of patients involved in the analysis is small. (Table X). A larger study population with a correspondingly greater number of streptococcal recurrences in the penicillin group is needed for valid clinical comparison. Such a study is in progress.

TABLE X
Patient Failures

	Number of Patients	
	Penicillin	Lincomycin
Age		
Pre-school	6	4
School	31	16
TOTAL	37	20
Type of Clinical Recurrence		
Tonsillitis	4	6
Exudative Tonsillitis	4	0
Pharyngitis	5	4
Adenoiditis	7	2
TOTAL	20	12
Day of Clinical Recurrence		
Within 28 days of onset of therapy	16	8
After 28 days	4	4
TOTAL	20	12
Carrier State Noted		
Within 28 days of onset of therapy	15	6
After 28 days	2	2
TOTAL	17	8
Strength of Culture in Patients with Clinical Recurrence		
Weakly Positive (1+ - 2+)	5	9
Strongly Positive (3+ - 4+)	15	3
TOTAL	20	12

Addendum

During the preparation of this paper, the first case of Group A beta-hemolytic streptococcal infection resistant to lincomycin was reported.[26] The streptococcus, identified as a type 12, was also resistant to erythromycin and to tetracycline. This case report makes necessary the determination of *in vitro* susceptibility to lincomycin whenever the use of this antibiotic in Group A streptococcal infection is contemplated.

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TWO VALENTINES

The Psychoanalyst to His Patient Love

Dearest, my id you've made to roar,
And beat at super-ego's door.
Ego is frazzled just to keep me in order,
Frustration's become my permanent boarder.
Love me or leave me for I'm dreaming in red,
As well as my couch, dear, please come share
my bed.

Anon

The Anginal Cardiologist to His Love

How do I love thee?
Let me tell:
You've shot my ECG to hell.
My ST's up; my P is peaked.
My intracellular K has leaked.
You've given me a V lead U,
But not, thank God, as yet, a Q.

Anon

"LEECHES TO THE ANUS . . ."

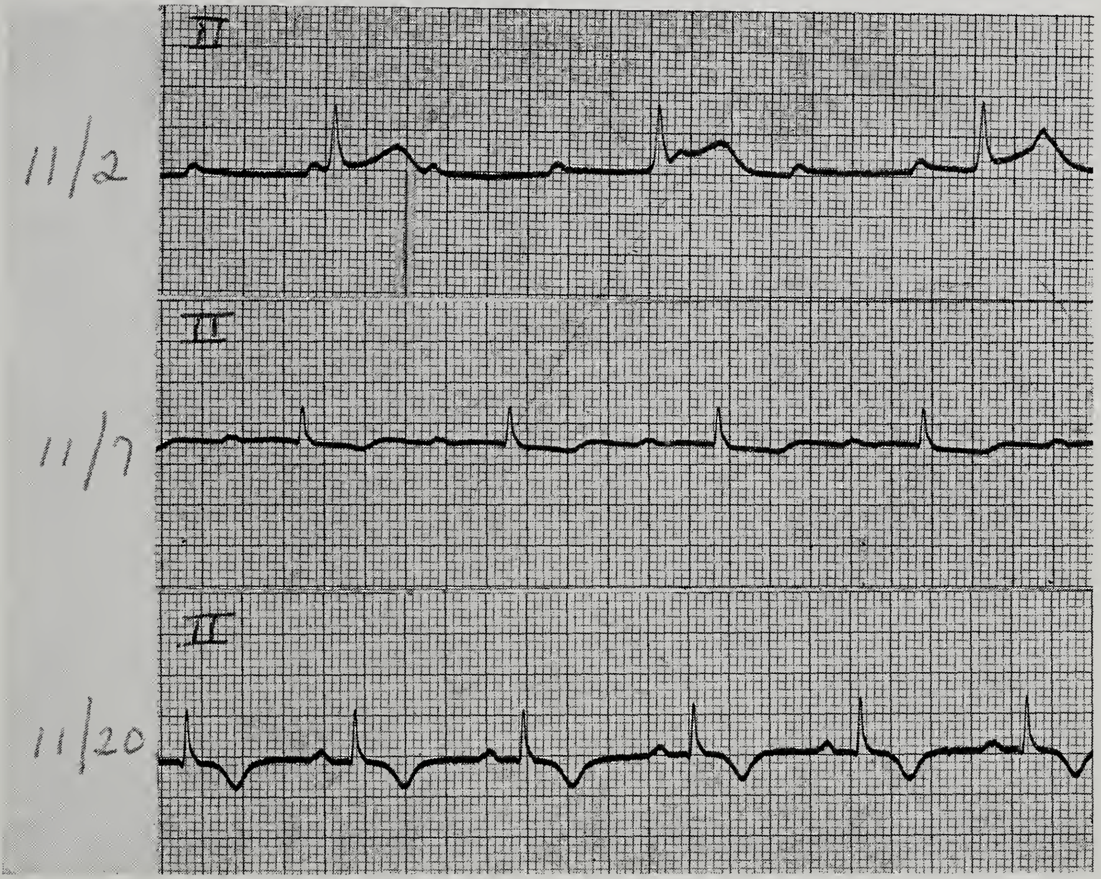
A list of therapeutic agents for the treatment of obesity in 1811, as quoted and enlarged upon by Tanner in his text *Practice of Medicine* (Philadelphia, 1867) exceeds in imaginativeness most of our present day armamentarium.

"Thus, we find a tolerable list of remedies in the pages of Maccary, which includes — bleeding from the arm or jugular vein; leeches to the anus; dry cupping; prolonged blistering; vegetable diet with vinegar; acids — except nitric and phosphoric; hot baths; saltwater baths; baths of Aix, Spa, Foges, Rouen, and Acqui; occasional starvation; decoction of guaiacum and sassafras; scarification; salivation; grief and anxiety to be induced; purgatives; issues; pricking the flesh with needles; walking with naked feet; and removal of exuberant fatty tissue with the scalpel. . . Since this ridiculous catalogue was published, Turkish baths, sea-voyages, very little sleep, emetics, digitalis, soap (a relative of Mr. Wadd's ordered a quarter of a hundred-weight of Castile soap for his own eating), salt, mercury to salivation, the inhalation of oxygen gas, purgatives, diuretics, the extract of the fucus vesiculosus, and preparations of bromine or of iodine have been freely tried."

P Q R S T

INTERESTING ELECTROCARDIOGRAMS

Editor: A. Henry Clagett, Jr., M.D.



Clinical Data:

Female, age 83. Diagnoses: Myocardial infarction; diabetes; possible digitalis intoxication.

The tracings consist of strips of limb lead 2 from tracings taken on 11/2, 11/7 and 11/20. Why not read these yourself before turning to page 66.

Reading:

11/2 Atrial rate—100. Ventricular rate—38. Mechanism—third degree AV block with complete AV dissociation.
Complexes—elevation of the ST segments; T waves upright.

11/7 Rate—59
Rhythm—regular sinus rhythm
PR interval—0.36 second (first degree AV block)
Complexes—slight depression of ST segment merging into a diphasic T wave.

11/20 Rate—84
Rhythm—regular sinus rhythm
PR interval—0.20 second
Complexes—ST segment isoelectric
T wave inversion (3.5) and cove shaped.
QRS—remain normal; no Q waves.

OVERWEIGHT TEENAGE GIRLS

• This program, conducted as group therapy, was successful particularly in relation to the "teacher identification" angle.

MARY L. STEFFENBERG

Health Education has long been recognized as an important responsibility of the schools. At Brandywine Springs Junior High School we have tried to meet this challenge through a program for overweight teenage girls. This course was geared to meet the individual needs of the student specifically through discussion of proper eating habits, exercise, grooming and attitude. We attempted to encourage students to ask their own questions, to find their own answers through disciplined eating and exercise habits, and to solve their own particular problems.

The girls were selected by studying the medical records of our school; only those with significant weight changes in the last year were invited to attend an orientation meeting. Astounding as it may seem, in the 8th and 9th grades of our school we discovered 91 girls with overweight problems. Total enrollment of girls in school is 360. Prior to becoming an active member of the group each child was required to present forms indicating parental approval and the family doctor's permission.

The weekly meetings consisted of weigh-in, group therapy, talks by knowledgeable specialists, buzz sessions, and question and answer periods. These meetings covered such areas as the nutritional needs of teenagers, the psychological and emotional effects of obesity, and the causes of overweight. Other sessions included a grooming and clothing demonstration, a food preparation session, a lecture on the intelligent approach to dieting with discussion of "diet pills" and fad diets, an exercise workshop, and a lecture on isometric exercises.

The volunteer personnel included: a clinical psychologist, an internist, a home economist from the University of Delaware Extension Division, as well as members of the Brandywine Springs Junior High School faculty.

During the ten weeks period of participation the attendance and enthusiasm of the girls was notable. At least 50% of the girls lost from five to ten pounds the maximum weight loss by a student was thirteen pounds. (Incidentally, one of the teachers involved lost twenty pounds).

Every girl in the group felt that she learned many new things about eating, exercise, diet patterns and the emotional and social effects of obesity.

A sampling of ad lib comments by the girls:

- Eating has become a conscious thing.
- My problem is the same as so many others.
- Getting together has made losing weight a team effort.
- Having my teachers talk so frankly about their problems has helped me to do something about mine.
- I gained three pounds but I'm sure I would have gained twenty-three had I not been in the group.
- Being overweight is not only a matter of what you eat but also what you do.
- I'm not going to let myself go. I'm going to do something about my problem.
- Just cutting down on the quantity of food I eat has helped me to lose.
- I always leaned on the crutch of a big frame and heredity." Now I know *to reduce involves me.*

Our success with this pilot effort at achieving a better understanding of the problems of obesity in teenagers and some progress towards weight loss has encouraged us to continue this type of program.

ACKNOWLEDGMENT

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Mrs. Steffenberg is Chairman, Special Education Department and is a teacher in Home Economics, Brandywine Springs Junior High School.

Highlights

CURRENT CONCEPTS OF PATHOGENESIS OF RHEUMATOID ARTHRITIS

Joseph L. Hollander, M.D. — *University of Pennsylvania Hospital. Wilmington Medical Center, Medical Conference, June, 1968*

Many years ago, William Boyd, the great Canadian pathologist, emphasized that in thinking of any disease, it is appropriate to emphasize the "how and why." Our current concepts of the how and why of that inflammatory disease known as rheumatoid arthritis are currently being modified by our increasing knowledge of immunochemistry.

A further exploration along these lines may eventually enable us to a complete understanding of rheumatoid arthritis and give us the answers to such continually perplexing questions as these: Why is rheumatoid arthritis a syndrome of continued chronicity even to the point of being a life-long disease? Why is Rheumatoid Factor (an antibody versus altered gammaglobulin) present in most but not all patients with rheumatoid arthritis? Does Rheumatoid Factor play any role in the origination and perpetuation of rheumatoid inflammation?

Research over the past twenty years is similar to a jigsaw puzzle in that it is only now that many seemingly unrelated fragments are being pieced together to give us a new concept of the pathogenesis as well as a rationale for previously empiric therapeutic modalities employed in rheumatoid arthritis. Rheumatoid arthritis seems to be a host response involving auto-immunity. There is probably genetic predisposition to such response which may occur after various stimuli including infection, trauma, and drugs. These various antigens react with immune G globulin, normally an antibody, in such a fashion that the altered immune globulin becomes antigenic. This altered immune globulin stimulates body plasmocytes to produce an antigammaglobulin which we know as Rheumatoid Factor. This is an immune globulin of the M type which now serves an antibody to react with the altered immune G. The resulting immune complex, phagocytized by PMN leukocytes, produces the so-called "RA cells." Lysosomal enzymes are liberated from these cells which are able to lyse cartilage and produce the typical pannus erosive chronditis which is rheumatoid arthritis. The enzymes also may break down normal immune G globulin into more antigenic fragments. The cycle is a self-perpetuating one which can explain the chronic nature of the disease.

Antigammaglobulin or Rheumatoid Factor is found in clinical situations other than typical rheumatoid arthritis and is therefore nonspecific. For this reason laboratory reporting of this factor should be quantitative since the titers are usually markedly increased in true rheumatoid arthritis. Interesting experiments have been performed in which immunoglobulin from patients with rheumatoid arthritis has been injected into the knee joint. Such injection produces a marked increase in titer of Rheumatoid Factor with associated evidence of clinical inflammation. The injection of normal immune gammaglobulin into knee joints does not provoke this reaction.

Papain-digested immunoglobulin from a normal individual does however provoke a reaction of polymorphonuclear leukocytic exudation. These leukocytes when examined by a special microscopic technique are peculiarly granulated giving rise to their descriptive name, "RA cells" or "ragocytes" (cells with seeds like raisins). It has been shown by specific staining that the granules or the "seeds" in the "raisins" represent aggregates of immuno M and immuno G globulin within the cell, showing that Rheumatoid Factor does take part in the reaction.

Non-specific stresses are known to have the potential for simulating immune mechanisms, thereby giving support to the previously empirically prescribed rest and supportive measures which are found to be helpful in rheumatoid arthritis. Salicylates, phenylbutazone, and indomethacin all have in common the ability to decrease phagocytic activity with diminished functions of lysosomes and diminished release of lysosomal enzymes. Gold and antimalarials may also act on leukocytes and may also have an activity directly against various infectious agents thereby decreasing the alteration of gammaglobulin by the infection. It is also possible that gold may in addition have the property of suppression of lysosomal enzyme activity or may prevent degradation of protein by stabilizing sulfhydryl bonds. Steroids are known to stabilize lysosomes and to inhibit lymphocytic activity.

Antimetabolites and chelating agents are lympholytic and/or lymphostatic and therefore decrease secretion of immunoglobulin G.

Surgical synovectomy of affected joints may do the same thing by decreasing the focus of lymphocytes and thereby interrupting the pathologic chain. A common problem in patients with rheumatoid arthritis seems to be their lowered resistance to infection which may in some instances be secondary to the prescription of steroids, antimetabolites, etc.

These are many pieces of the puzzle which are not in place. At the present time we are frequently extrapolating from known data to produce complete current concepts. In many instances these offer a rational explanation for previous prescriptions and concepts of pathogenesis.

INTERPRETATION — Interesting Electrocardiograms (Page 63)

1. The progressive changes involving first the ST segments and later the T waves and the fact that these changes persisted over a period of 18 days indicate that this lady did indeed have an infarction of her myocardium. The fact that there were no abnormal Q waves would further indicate that this was a so-called "small, atypical infarction" (early 1950's) or "T wave infarction" (late 1960's).

2. The progressive changes in rhythm beginning with complete AV dissociation, passing through first degree AV block, and ending with normal sinus rhythm (no block) could be either due to digitalis overdosage or acute myocardial infarction. This lady was taking digoxin 0.25 mg daily. While this admittedly is a small dose, we must remember that she was 83 years of age and this could be toxic at this age, especially if she was a small person. However, the same dose was continued throughout her illness and it would seem to be sufficient evidence to ascribe her heart block to the effects of the infarct.

Complete AV dissociation in acute myocardial infarction is thought to be due to infarction or ischemia of the conducting system. In this case, return to regular sinus rhythm would suggest that the mechanism was ischemia.

Editorials

PROFESSIONAL CORPORATIONS — GOOD OR EVIL

There is no statute on the books in the State of Delaware to permit professionals to incorporate. The Internal Revenue Service of the Federal Government has fought to prevent such corporations from exercising those tax privileges available to all corporations.

To understand the reluctance of the Internal Revenue Service to recognize such corporations, one need only investigate the advantages to the incorporated professionals. The savings of tax dollars is considerable Through a corporation it is possible to deduct current retirement contributions and defer taxes on the fund while it is building. Although the Keogh Bill offers the same advantage, under the Keogh Fund, even as recently amended, tax deductible contributions will be limited to $2,500.00 a year. Contributions under a corporate plan can be more generous and there is no dollar limit imposed. Moreover, if the incorporated professional dies before retiring, while a member of the corporation, he can leave his fund to his heir, free of income or state taxes — something that can not be done with Keogh money.

Another big advantage of incorporating is the possibility of establishing tax sheltered fringe benefits such as life, disability, and medical insurance programs. Such benefits, paid for by the corporation, are listed as business expenses on its income tax return. This, in effect, reduces professional taxable income without reducing actual income.

A greater flexibility in the establishment of pension plans is permissible in a corporation than under the Keogh Plan. The corporation can establish its own rules regarding the time an employee is eligible for coverage. It is not bound as rigidly as the program set up under the Keogh provision in which retirement ages are ordinarily fixed between 59½ and 70½. A corporation can select whatever retirement age it sees fit.

In addition, members of a professional corporation can elect to have their retirement pay-out under long term capital gains rules instead of at ordinary income tax rates. To receive that tax advantage, it requires setting up a corporation pension plan so that the entire amount can be removed in a lump sum at retirement. Payments received all in one year can be reported on the tax return as a long term capital gain.

Many other advantages are available to the incorporated professionals. Circuit court decisions in many states have ruled that the Internal Revenue Service's stand on the issue of professional incorporation imposes a hardship upon the professional. It is the opinion of many tax experts that professional corporations will be acceptable to the Internal Revenue Service, either through Supreme Court ruling, or through national legislation.

In view of the advantages to be gained from such incorporation, this writer feels that Delaware should follow suit with the 36 other states in the Union which have adopted legislation enabling the formation of professional corporations. Such a bill is before the Committee on Public Laws of the Medical Society of the State of Delaware. Hopefully that Society will urge our state legislators to enact the required legislation so that those professionals in the state who wish to take advantage of the benefit provided by incorporation may do so. *C.I.G.*

Letters to the Editor

• To the Editor: Dear Sir . . . Agreeing or agreeable, disagreeing or disagreeable, we welcome your comments on our contents or on matters you feel would be of interest to your fellow physicians. Let us hear from you.

To the Editor:

Today the practice of medicine is troubled with many problems. These include a shortage of physicians, increasing demands on our time, and, the experts say, inefficient utilization of our present manpower. Added to this is a system of taxation that actually penalizes an individual for working harder in an attempt to help meet these problems.

If physicians were allowed to enjoy some of the benefits of the corporate executive, I believe we might attract more men into the field. It might also encourage more group type practice that would allow for more effective and economical use of the physicians' time. It would also provide some slight tax relief to individuals.

I therefore suggest that the Medical Society of Delaware support and encourage the passage of any legislation that would allow the incorporation of professional individuals.

James P. Aikins, M.D.

To the Editor:

The PHS Advisory Committee on Immunization practices has recently revised its recommendations for the use of mumps vaccine. Because one million doses have been administered in the first year of the vaccine's availability without significant side reactions, the indications have been revised.

Live mumps vaccine may be used at any age from 12 months. It should not be administered to children less than 12 months old because of possible persistence of interfering maternal antibody. The vaccine is of particular value in children approaching puberty, adolescents, and adults, especially males, who have not had mumps parotitis, either unilateral or bilateral. (The mumps skin test with currently available antigens is an unreliable indicator of immunity.)

The Committee suggests that consideration be given to immunizing all susceptible children over one year of age.

In closing their revised recommendations, the Committee once more stressed the importance of careful surveillance. They feel that there is a very definite need to improve the reporting of mumps cases and resulting complications not only to demonstrate the lasting immunilogical effectiveness of the vaccine and document patterns of vaccine use, but to more accurately assess the actual health problem which mumps represents. The private physician's cooperation is currently being solicited in an effort to better achieve proper surveillance of this disease in Delaware.

At the present time, the State Board of Health is unable to provide mumps vaccine to the physicians. However diphtheria, pertussis, tetanus (DPT), poliomyelitis, measles, and smallpox vaccines continue to be available from the State Board of Health for use by the private physician in patients who cannot afford to purchase the vaccine.

Edward F. Gliwa, M.D.
Deputy State Health Officer

CANCER STATISTICS

. . . Cancer has remained the second leading cause of death from all causes in the United States since 1929.

. . . Their are about 22,000 cancer deaths annually of patients aged 15 to 44.

. . . Cancer is the leading cause of death among women aged 30 to 54.

. . . Approximately a quarter of the female population has a lifetime probability cf cancer developing in any site, and a quarter of these will be breast cancers.

President's Page

MEDICAL INCORPORATION

Approximately 75% of the states now allow professional incorporation. Delaware belongs in the minority group.

In the absence of local law to the contrary, groups organized for the practice of medicine are regarded as partnerships under local law even though they might otherwise qualify as associations taxable as corporations.

The benefit of forming a medical corporation is that the corporation would provide self-employed individuals — physicians, lawyers, dentists — with retirement plan income tax benefits similar to those afforded employees and officers covered by corporate pension plans. The tax advantages are based on deductions to be taken for life, disability, and medical insurance as well as for unemployment, workmen's compensation, and Social Security.

To those to whom corporate or group practice is anathema, I say, admittedly it isn't for everyone, but incorporation should be available to those who wish to take advantage of it. There *is* a choice involved.

If a professional corporation possesses three of the four corporate characteristics, according to the Internal Revenue Service it can be classified and taxed as a corporation. The traits are:

(1) Continuity of life
(2) Centralized management
(3) Limited liability
(4) Free transferability of interests

The IRS does not believe physicians can qualify, and consequently it is opposed to professional corporations.

Several cases are now pending which contest this view of the Internal Revenue Service. Excellent legal minds feel there is a good chance the IRS stand will be struck down. To be ready for this eventuality I feel we should as a Society, promote legislation on a State level that would allow the incorporation of medical practice.

Charles M. Moyer

In Brief

50th Anniversary

Dr. M. A. Tarumianz, formerly Director of Mental Health for the State of Delaware, was honored recently for his 50 years of service to the State in the field of mental health. He had been associated with the Department of Mental Health for 46 years when he retired in 1964 to practice psychiatry as a private physician. Dr. "T", as he is known, created a new era for the care of the mentally retarded and succeeded in gaining the interest of the public in raising the standards of care for those afflicted with emotional problems.

In The News

- Ruth A. Oartel, M.D., Claymont pediatrician, shared the 1969 Distinguished Service Award of the Brandywine Hundred Jaycees with a Chester, Pennsylvania, youth worker. Dr. Oartel was honored for her work with the Well-Baby Clinic of Claymont.
- Yvonne Russell, M.D., formerly director of maternal, child, and crippled children's services for the Delaware State Board of Health, has been appointed assistant dean and associate professor of pediatrics at the University of Cincinnati College of Medicine.
- Carlo A. Cuccia, M.D., had a paper entitled, *The Radiation Attack*, published in the January 13, 1969, issue of JAMA.
- Governor Terry appointed the following physicians to Boards and Commissions: Raymond A. Lynch, M.D., to the State Board of Health (reappointment); James R. McNinch, M.D., to the Board for the State Home at Smyrna; Maynard H. Mires, M.D., renamed to the Delaware Day Commission; Daniel Alvarez, M.D., named to the Board of Trustees of the Department of Mental Health.

Medication Errors Avoided

Most nursing units at Temple University Hospital are being equipped with their own individual *satellite pharmacies* that will provide more professional, efficient and economical medication service to the patient. These serve only those patients on a particular floor, and have helped reduce medication errors through a back-up system involving the nurse, pharmacist and pharmacy assistant.

Seaford Seminars

The Seaford Seminars of the Medical Society of Delaware will be held at the Nanticoke Memorial Hospital from noon to 1 p.m. on:

Mar. 11, 1969, *Diagnostic Uses of Isotopes and Ultrasound*, Robert L. Meckelnburg, M.D.

Mar. 18, 1969, *Hormonal Therapy in Gynecology*, Oscar N. Stern, M.D.

Speakers on "Ask The Doctor"

Speakers for March, 1969, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: Mar. 4, Joseph E. Belgrade, M.D., *Gallbladder Disease;* Mar. 11, Ronald C. Corbalis, M.D., *New Emergency Services;* Mar. 18, Alfred Lazarus, M.D., *Diverticulitis and Diverticulosis;* Mar. 25, Girard S. Serino, M.D., *The Peptic Ulcer.*

Position Wanted

Dermatologist — Board eligible, service completed, age 33, married, seeks solo, association, partnership, or group practice. Please address all inquiries to the Executive Secretary of this Journal.

How Green Was My Plasma

A significant number of women taking oral contraceptives have green-tinted blood plasma. The green color is probably due to a relative deficiency of yellow pigment although a second factor, increased amount of the blue pigment ceruloplasmin, is necessary to produce the green plasma. Since ceruloplasmin is a normal constituent of plasma, blood with green plasma is suitable for transfusion. (Tovey, L. A. D. & Lathe, G. H. — Univ. Leeds, Leeds, Eng. — Lancet 2:596, Sept. 14, 1968.)

How Bigger My Bust

Approximately 50 different side effects, some serious — some not so serious, have been ascribed to oral contraceptives. In most cases such effects are observed within the clinical or laboratory setting. The market place, however, is not to be denied. Brassiere manufacturers are now faced with problems of an ever-expanding American bust. One garment manufacturer notes that sales of "'C" cup (larger than average) bras have soared 50% in the past 10 years. The increase in bust size (some human engineering firms specialize in keeping track of such changes, a study that is called anthropometrics) is attributed to better nutrition and the hormonal effects of "the pill."
(From: Clin-Alert, October 16, 1968.)

The Month in Washington

Cigarette Advertising

A Federal Communications Commission proposal to ban cigarette advertising on radio and television put the issue squarely before Congress again. Congressional reaction to the FCC ruling was mixed. The AMA declined in December to approve a resolution condemning cigarette advertising on TV. Instead it adopted a resolution urging that AMA members "play a major role against cigarette smoking by personal example and by advice regarding the health hazards of smoking."

Health Costs

Health care costs received a high priority by the new secretary of HEW. "My people are going into this to see what we can do about the sky-rocketing costs — especially hospitalization where 70% of the costs are labor," Robert H. Finch said. A bill, introduced by Senators George Aiken, Mike Mansfield, and Winston Prouty, as co-authors, would do away with the present "usual and customary charge concept," place all physicians on assignment, and reimburse them through the average payment for the same service provided by the local Blue Shield. Deductibles and co-insurance would be eliminated, among many other changes. The Labor Department reported that medical costs, including both hospitalization and physicians' fees, rose 7.3 per cent for the calendar year, 1968.

Doctors' Draft

The Defense Department will call up 437 physicians, 23 osteopaths and 25 optometrists in 1969 in the lowest doctors draft in seven years. The stabilization of the buildup of forces associated with the Vietnam war and a large number of volunteers made it possible to keep the doctors' draft low. All of the physicians will go into the Army. None will go into uniform until July.

CLINICAL NOTICES AND MEETINGS

American Society of Anesthesiologists

The Forty-third Congress of the International Anesthesia Research Society will be held March 2-6, 1969, at the Americana Hotel, Bal Harbor, Florida.

Rural Health

The AMA's 22nd National Conference on Rural Health will be held at the Philadelphia Marriott Motor Hotel, March 21-22, 1969. No registration fee. For details, write: Bond L. Bible, Ph.D., Council on Rural Health, AMA, 535 N. Dearborn St., Chicago, Ill., 60610.

American Academy of Allergy

The American Academy of Allergy will celebrate its 25th Anniversary during their 1969 Annual Meeting to be held March 17-19 at the American Hotel, Bal Harbour, Florida. It will be preceded by a two-day Postgraduate Course. For details, write: American Academy of Allergy, Exec. Office, 756 N. Milwaukee St., Milwaukee, Wis., 53202.

Socio-Economics of Health Care

The AMA's Third National Congress on Socio-Economics of Health Care will be held March 28-29, 1969, at the Palmer House, Chicago, Illinois. For information, write: AMA, 535 North Dearborn St., Chicago, Ill., 60610.

Psychiatry Symposium

Psychiatry and the Internist is the title of Hahneman Medical College's 20th Symposium to be held March 31 to April 2, 1969. For further details, write: Hahneman Medical College, 230 North Broad St., Phil. Pa., 19102.

Two Pulmonary Courses

The University of Pennsylvania Division of Graduate Medicine of the School of Medicine announces two pulmonary courses:
Pulmonary Physiology, March 3-7, 1969, Fee: $75.00
Pulmonary Diseases, March 10-21, 1969, Fee: $150.00
Classes for both courses will be limited to 50 persons. Address inquiries to: Office of the Director, Div. of Graduate Medicine, University of Pennsylvania, 237 Medical Lab. Building, Phil., Pa. 19104.

Arthritis Symposium

A *Symposium on Arthritis and Related Disorders* will be held March 3-7, 1967, at the New York University Medical Center, 550 First Avenue, New York City. Fee: $125. For details, write: Office of the Recorder, New York University Post-Graduate Medical School, 550 First Avenue, New York, N. Y. 10016.

Colon and Rectal Surgery Dinner Meeting

The Pennsylvania Society of Colon and Rectal Surgery Dinner-Meeting will be held at 7:30 p.m., Wednesday, March 5, 1969, at the Union League Club of Philadelphia, Broad and Sansome Sts., Philadelphia. The Program is entitled *Surgical Treatment of Anal Ulcer and Hemorrhoids.* Fee: $12.50. For information, write: Valentine R. Manning, Jr., M.D., 3936 Aldine Street, Phil., Pa.

Postgraduate Courses ACP

The following courses are announced by the American College of Physicians:
Mar. 3-6, 1969, *Physiological Concepts of Clinical Disease*, The University of Texas Southwestern Medical School, Dallas, Tex.
Mar. 3-7, 1969, *The Doctor: His Patient and the Illness,* University of Cincinnati College of Medicine, Cincinnati, Ohio.
Mar. 17-21, 1969, *Recent Advances in Cardiovascular Disease,* The Mount Sinai Medical Center, Blumenthal Auditorium, New York City.
Mar. 24-28, 1969, *Modern Pathology for Internists,* University of Pittsburgh School of Medicine and Presbyterian University Hospital, Pittsburgh, Pa.
March 26-28, 1969, *Three Days of Gastroenterology,* Emory University School of Medicine, Atlanta, Ga.

American College of Surgeons

The ACS Joint Meeting for Doctors and Nurses, will be held March 10-12, 1969, at the Boston University School of Medicine. For details, write: Mr. T. E. McGinnis, Manager of Exhibits and Meeting Arrangements, ACS, 55 E. Erie St., Chicago, Ill.

Postgraduate Institute

The Philadelphia County Medical Society will hold its Thirty-Third Annual Postgraduate Institute at the Marriott Motor Hotel, City Line West of Schuylkill Expressway, March 31-April 2, 1969.

Pediatric Series

Jefferson Medical College will present a series, *Recent Advances in Pediatrics,* on eight consecutive Wednesday evenings from March 5 to April 23, in the Pediatric Classroom, 8th Floor Main, J.M.C. Hospital. Fee: $50. For details, write: John H. Killough, M.D., Associate Dean, Jefferson Medical College, Phila., Pa. 19107.

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MEDICAL EDUCATION AND RESEARCH ARE FOR MEDICAL SERVICE

• This is not an official statement of University of Delaware policy. It is a progress report on the University's continuing appraisal of its growing role in education and research in health and health-related fields. Discernable trends in the patterns of health services generally, and specific data on the picture in Delaware are presented as background material. Emphasis is placed upon the professional and public involvement in the development and support of the most effective University programs.

John B. Truslow, M.D.

It is almost sixty years since Medical Education turned to the University. The widening gap between medical science and medical education was so effectively demonstrated by Abraham Flexner that his report in 1910, under the auspices of the Carnegie Foundation, sounded the death knell for scores of proprietary medical schools, and set the pattern of academically-oriented training for medicine in the United States.[1]

To this remarkable achievement must be ascribed major credit for the extension of Medical Science far beyond even theoretical comprehension by a single individual — or even a single profession. In fact, over the years, increasingly versatile interaction of the scholarly resources of the University and of the missions of the medical professions has created an ever-expanding potential of service to man beyond our current capacity to deliver.

Today, the gap is between Medical Science and Medical Service — between a body of knowledge that is impossibly large and complex and a medical care establishment that is inadequately organized for the translations of these advances into service to people.

This theme has been eloquently developed by Ward Darley and Anne Somers in a classic series of articles deserving comparison with the thrust of the Flexner Report.[2] It can best be pointed up in direct quotation:

> *In other words, as we compare today with the early 1900's we find that instead of suffering from a blight of pedestrianism, we are weighted down by the fruits of our progress — progress within medicine itself and progress within the society that medi-*

Dr. Truslow is Consultant in Medical Education, University of Delaware.

> *cine must serve . . . Moreover, today's challenge is directed not only to the physician but also to the nurse and all the essential new health professions and occupations that have developed since the Flexner era . . . we simply have to talk about and learn to understand the meaning of "team efforts" and of "comprehensive care."*

These two phrases have become increasingly familiar to all of us and, against the background of mounting crises of manpower and health service costs in the United States, there must be few who would quarrel with their apparent validity.

But, translation of these phrases from the category of "vague specifics" into operational practice and procedure more or less involves the whole of society. There are professional attitudes and habit-patterns and value judgments to be anxiously reviewed. There are implications of tampering with traditions of medical care very precious in the minds of millions who have been fortunate in their doctor-patient relationships. There are legal and licensure and group-jurisdictional factors to be assessed and perhaps modified along the way.

In short, if essential elements of the present patterns of health services and medical care are to be preserved in the process of their accomodation to the realities of Medicare and Medicaid, of regional planning and comprehensive state planning, not to mention the continuing relentless advance of medical science, the total community must be involved in the evolution of team efforts and of comprehensive medical care.

This is more easily said than done, but it very possibly describes an extraordinary area of challenge to the modern University disposed to relate more and more of its talents and resources to the immediate needs of the community.

Health and medical care needs in Delaware represent one such area of concern for the University of Delaware in the years ahead.

Over the past two years, extensive studies have been undertaken to determine the most effective role or roles for the University in meeting this challenge. Three concentrations of effort and program have gradually evolved from these studies as the University goes forward with:

I. A steady increase in the courses and course enrollments in the allied health professions on the undergraduate campus, with particular interest in new curriculum and teaching methods, in training teachers for other programs in the state, and in the development of clinical affiliation with the Wilmington Medical Center, and with hospitals throughout the state as they evidence interest and potential capabilities in such participation.

II. A Joint Program with the Wilmington Medical Center and one of Philadelphia's leading medical schools designed to:

1. Assure 20 first-year openings in medical school for Delaware residents each year;
2. Establish an individualized program for the course of study from high school graduation to the medical degree, introducing flexibility into the duration of the course in recognition of individual student abilities;
3. Strengthen factors of education program, referral service and medical communications, which have been shown to be most effective in the decision of well-trained physicians to practice in an area; and
4. Enrich graduate programs in the sciences related to health, and establish state-wide programs in continuing education for practicing physicians and allied health professionals.

III. The possibility of establishing a Health Affairs Council with both intramural and community functions and purview:

1. Coordinating efforts and interests of many departments on campus already drawn into some aspect of the field of health management research and planning; for example, the Divisions of Urban Affairs, Technical Services and Agricultural Extension, the Department of Sociology, and the School of Business Administration; and
2. Cooperating with established health-related groups and agencies in the community

in areas of research, consultant services, coordination of health planning, health education of the public, and many other areas (for example, the Regional Medical Program, the State Comprehensive Health Plan, the Health Planning Council of Delaware, State and County Medical Societies and other professional organizations).

As these three program areas are discussed in the following paragraphs, it will become clear that their separate identities are more administrative than real, and that there is endless opportunity for mutual efforts and programs.

Even more clear, however, must become the fact that the success of many aspects of these programs depends in considerable part upon the involvement and support of the medical professions and the public.

Undergraduate Courses in the Health Fields in Delaware

Over the years, Delaware residents interested in entering the health professions have had to attend out-of-state schools for training not only in medicine, dentistry, and veterinary medicine, but also in pharmacy, clinical psychology, physiotherapy, occupational therapy, inhalation therapy, social work and many others. Until very recently, only in nursing and in medical technology have accreditable basic programs been offered in the state, and at the graduate level, there have been a few approved internships and residencies.*

Clearly, Delaware has been a longtime beneficiary of great educational resources in the neighboring medical centers of Philadelphia and Baltimore, although precise data supporting this assertion is available only in medicine and dentistry, and to some extent in nursing. Fifty percent of the practicing physicians in Delaware graduated from Philadelphia Schools of Medicine. Even more significantly, only one of every five Delaware physicians was originally from this state, while two of five came from Pennsylvania, New Jersey, or Maryland. In the case of registered nurses, it is at least suggestive that among first-licensure registrants in Delaware during each of the past five years, there were two graduates of nursing schools in Pennsylvania to every three graduates of nursing schools in Delaware.

For almost twenty years, the University has had an accredited course in medical technology — one of the few courses in the nation to remain strong and well-attended through the recent period of controversy and changing standards in this field of study. Affiliation in the clinical year of this course has been with one or more hospitals in Wilmington; and, now with the Wilmington Medical Center, negotiations are proceeding to enhance the facilities and broaden hospital-based staff in the total program. A Public Health Service Grant in 1967 (renewed and increased in 1968) has strengthened this program and increased the prospects of expanding clinical affiliations throughout the state. In September, 1967, a course for medical laboratory assistants was instituted, leading to the Associate Degree (2 years).

The story of the School of Nursing at the University is equally promising to the success of the University's expanding programs in the health fields. Coincident in its conception and establishment three years ago with the phasing out of diploma schools sponsored by each of the hospitals merging into the Wilmington Medical Center,* the University College of Nursing reports a total of 256 undergraduates in September, 1968, and the inauguration of a graduate program in Nursing in several clinical specialties. Exploration of the possibilities of Associate Degree Programs has begun. A College of Nursing building seems reasonably assured of adequate funding totaling about three million dollars from private and government sources.

At this point, it may be helpful to make a few general observations about education in the allied health programs. There can be no doubt about the necessity of constant review and revision of training programs in relation to ever-changing service functions and forms in the years ahead. As functional studies continue to demonstrate the wastefulness of professional arts and skills in many current management patterns of medical services today, there must remain in the educational sphere a flexibility not only for increase of curricular content, but also for decrease and redirection. There is a growing role of great importance for Associate-degree-qualified graduates in the health professions — and it is worth noting in this connection that the University of Delaware is one of very few universities in the nation in which there is virtually no academic or social discrimination between Bachelor's and Associate-degree students.

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*From time to time, on-the-job training programs in health occupations have been reported in Delaware — but these scarcely belong in the discussion of health education except perhaps to reinforce the argument for greater educational opportunity in the state.

*Directly related to this phasing out of the three nursing schools, also was the establishment of the Nursing School of Wilmington which offers a two-year diploma course.

However, as the University steadily increases its scope and commitment in the health fields — programs for clinical psychologists (5 years), physiotherapists and radioisotope technologists (4 years); and respiratory (inhalation) therapists (2 years) are being planned for the near future — there is no intent to pre-empt the field. On the contrary, it is earnestly hoped that the University will serve as a major resource for personnel, planning and implementation of professional programs in health fields throughout the state with special emphasis on rural areas and center-city neighborhoods.

THE JOINT PROGRAM

Background

For over ten years, the University of Delaware has periodically reviewed and weighed the issues relative to establishment of a medical school. Within a few months of the release of the Bane Report in 1959,[3] Ward Darley, then Executive Secretary of the Association of American Medical Colleges, was on the University campus consulting on the possibility and prospects and potential of an accreditable two-year medical school. At almost the same time, the medical profession of Delaware became more generally interested in the medical school idea. Indeed, one of the most prompt and forthright responses to the Bane Report was published in this Journal in January, 1960.[4] A questionnaire circulated to 450 members of the Delaware Medical Society was reported to show that almost 50% of the respondents favored a two-year medical school in Delaware, and shortly thereafter, a committee to establish a Medical School in Delaware was appointed.

A Feasibility Study[5] was actively promoted by the Delaware Academy of Medicine, and in 1964, co-sponsored by the University of Delaware. It was directed by Dr. Kenneth E. Penrod, then Vice President for Medical Affairs, West Virginia University,* and reviewed by an Advisory Committee of distinguished national medical educators.

Pointing to the limited population-base and tax base of the State particularly, the "Penrod Report" advised against "the establishment of a tax-supported medical school in Delaware within the decade of 1965-74." It suggested that the long range plans of the State and of the University include provisions for the beginning of "a full medical school with clinical facilities some 10-15 years hence" and that "a two-year school be planned only to phase this development over several years." Specific recommendations included substantial strengthening of house-staff and other educational programs in the new Wilmington Medical Center with closer ties to one or more teaching institutions in Philadelphia; establishment of a citizens' committee for the improvement of the delivery of health care to rural communities; and expansion of graduate programs in the University in the health-related sciences, plus extension of basic training programs in the health fields.

Remarkable progress has been made in the past four years in all three of these areas. In University graduate programs related to health, master's degrees awarded increased from 50 to 82; and Ph.D.'s from 18 to 38. Substantial funds have been provided from private sources for development over a period of years, of the biological sciences, and to a lesser extent the behavioral sciences. Increased University funds have attracted substantial federal funds in support of expanding programs in nursing and medical technology. Funding a Nursing School Building has already been mentioned. Early in 1967, the decision was made to undertake a continuing appraisal of the University's role in education in the health fields. One aspect of this project was specifically described as broadening the base of the Penrod Report, and keeping it up to date.

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*Presently Vice President for Medical Affairs at the University of Indiana.

These studies have reviewed original and current data on population, tax base, educational base and related resources involved in the issue of feasibility of a medical school. They have benefited from well-informed and candid expositions of trends in the granting of federal matching funds for new construction and operation of full-scale medical schools. With the generous cooperation of state and private health agencies, state and county medical societies, the State Board of Medical Licensure, State Board of Nursing, Hospital Council of Delaware, the Delaware Health Planning Council and many other groups and individuals in the community and the University who are knowledgable in the field of health, there has been amassed a body of data and a consensus of judgment on this question of a medical school. These have been conveyed to the University with three summary recommendations:

1. A full scale medical school in Delaware is not likely to be feasible in the foreseeable future, and it would be better for all concerned to postpone this idea indefinitely;
2. There is no place in medical education in the foreseeable future for two-year medical schools because the nationwide ferment in curricular changes has generally introduced clinical work into the first two years and thus raised the factor of cost and has made transfers extremely complicated and individually risky.
3. An alternative Joint Program involving existing institutions and resources is likely to realize for Delaware the expectations of the most ardent proponents of a medical school, and to attain these goals realistically within the resources of the State.

It has been essentially within this frame of reference that University consultations with the Wilmington Medical Center led to contacts with the cooperating medical college of Philadelphia early in 1967 and to the discovery of numerous mutual benefits which might result from a Joint Program in undergraduate, graduate and post-graduate medical education; in graduate education and research in the natural and behavioral sciences; and in the context of regional and state health plans. Continuing conferences over the year resulted in tentative proposals which in January, 1968, received approval of the Boards of each institution to develop into procedural plans.

Several features of this program will be discussed with particular attention to their primary purpose of increasing the numbers of qualified applicants admitted to medical school, strengthening the factors favoring recruitment of qualified physicians to practice in Delaware, and enriching the graduate programs of the University in fields related to health.

A Few General Comments on Admission to Medical School

In states with state-supported medical schools, resident student applicants have reasonable assurance that admission to medical school is based upon the attainment of specified academic qualifications. There is appropriate pressure in the achievement of these qualifications, but there is release from the individual competitive pressures with which students are so often inundated when their opportunities for admission may be limited by other considerations such as out-of-state residence.

Every state *without* a state-supported medical school *except Delaware,* has taken at least one important step to alleviate both the intensity of student competition against the field, and the substantial tuition and living cost factor of out-of-state training in medicine.

Through arrangements with one or more out-of-state medical schools, each of these states through legislative appropriation contributes to those schools a portion of the cost of medical education for their students. Maine, New Hampshire, and Rhode Island, through the New England Board of Higher Education make subsidy payments to the University of

Vermont School of Medicine for resident students in good standing. Through the Western Interstate Commission on Higher Education, selected out-of-state schools attended by residents of Montana, Nevada, Idaho, Wyoming, Alaska, and Hawaii are similarly subsidized in part by their respective legislatures. An extremely significant feature of each of these subsidy programs is that it makes the out-of-state student eligible for in-state tuition — a difference averaging about $600 per student per year.

The Joint Program proposes a somewhat longer step in this direction based upon the interest of the cooperating medical college not only in the allocation of up to twenty openings a year in the first year class in medicine for Delaware students academically qualified by the medical college standards and eligible for full-cost subsidy from Delaware but also in collaboration with the University of Delaware in establishing the opportunity for selected students of accelerated course from high school graduation to Bachelor's and Medical degrees. Equally significant may be the further prospect of University and medical college development of graduate programs in teaching and research.

In the course of discussions about this program, however, another factor of timeliness became apparent. Medical schools in Pennsylvania are technically "private" in their sponsorship and direction, but as the cost of medical education has steadily increased in recent years, there have been steady increases both in tuition and in state subsidy payments per student. As Pennsylvania legislative subsidy of the cost of education in medical school approaches 50% of the total per student cost, there is increasing concern about the continuation of these subsidies for the training of substantial numbers of out-of-state residents.

The impact of this contingency upon the opportunity of Delaware students to enter medical school can be readily inferred from two recent statistics:

1. Of 318 Delaware residents admitted in the twenty-year period of 1947-66, 143 (48%) attended schools in Philadelphia.
2. Of 70 Delaware residents in medical school in 1967-68 (in all four classes), 31 (44%) were enrolled in Philadelphia schools.

At the time of a well-planned effort to increase the opportunity for Delaware residents to enter medicine, there may well be a prospect of decrease in the status of Delaware's long-favored position in Philadelphia schools!

The case for Delaware legislative subsidy of the cost of out-of-state education in medicine for Delaware residents can thus be realistically presented in terms of urgency as well as ample precedent.

The proposal to limit it, at least initially, to one medical college is based upon its intrinsic relationship to the Joint Program and the opportunity thus afforded for a group of Delaware students to relate to each other and to their state as they would in a state medical school — extending into clinical years and house staff appointments, as will be described below.

But the numbers of students to be thus subsidized and the prospects of increasing these numbers over the years are matters of educated guesses on the one hand and vigorous education and promotional programs on the other — programs in which the practicing profession of Delaware can play a critical role.

A little further analysis of the twenty-year record of Delaware student admissions to medical school is illuminating, and projections against anticipated high school and college enrollments may be helpful.

Delaware Admissions to Medical School

Over the twenty-year period of 1947-66, 638 residents of Delaware completed formal applications for admission to medical school (some to six or eight schools) and 318 were admitted to the first-year class. On an annual basis, this averaged 32 applicants and 16 admissions, and successive five-year periods (averaged on an annual basis) emphasize the limited variations in these figures over the last two decades.

Periods Five-Year	Annual Averages within these Periods		
	Applicants	Admissions	Admission Rate
1947-51	34	14	42%
1952-56	27	12	43%
1957-61	31	20	64%
1962-66	36	18	50%

In the most recent five-year period (1962-66), the 50% acceptance rate compared favorably with Pennsylvania (49%) and New Jersey (48%); with eight other states without a state-supported medical school (47%); and with the national rate of 51%.

However, annual admissions as a ratio of state populations, or of high school graduates or Bachelor's degrees awarded in the state (insofar as these rates are available and significantly comparable), suggest less favorable comparisons of Delaware with our neighboring states or with the nation as a whole. If such ratios as reported for Delaware in 1966, when 18 residents were admitted to medical school, were adjusted to those reported for Pennsylvania, 22 residents would have entered medical school; with New Jersey's ratio, 31; with Maryland's, 27; and those of the nation, 22.

Somehow, a significantly smaller proportion of Delaware residents are stimulated into medicine, or are able to follow through for one reason or another.

Outstanding among these reasons is very probably the factor of cost, compounded by length and remoteness of the medical course.

Of the 70 Delaware residents in medical school in 1967-68, 49 (70%) were attending private institutions at an average tuition of $1700 a year and 21 (30%) were in state medical schools with average out-of-state tuitions of $1200 a year (ranging from $1050 for one student at Utah to $1350 for each of seven students at the University of Virginia).

Equally significant is the fact that between 65 and 75% of these same students (information is incomplete for several students on this point) took their premedical training in private colleges or universities outside of the State of Delaware. A conservative estimate of the total educational costs of two-thirds of the Delaware residents now in medical school (tuition, fees, room and board, over an eight-year period) is $30,000.

Particularly for those who can afford to send their children away to college, there are many good reasons for picking specific colleges and universities away from home and indeed in another part of the country; and the students themselves can present similarly persuasive reasons. But for many, there are comparably persuasive reasons for attending college in Delaware particularly in programs and courses giving promise of excellence in preparation and promotion in specific career areas.

The Joint Program appears to assure another such area of strength and versatility at the University of Delaware.

Development of the Premedical Program at the University of Delaware

Two characteristics of the premedical program at the University over the past twenty years suggest the significance and potential of such special emphasis here upon careers in the health professions. Over this period there has been steady and, indeed, startling improvement in the performance of premedical students on the Delaware campus on the National Medical College Admissions Test (M.C.A.T.). Most recent report covering a three-year period shows that of 562 tests taken by 89 students (4 tests by each student), 67% exceeded the national average, and of these, 28.1% were in the 600 range, and 5.6% over 700.

Perhaps the most interesting finding concerns the apparent contrast in the prospects of settling in Delaware to practice by University of Delaware graduates and by those who took their premedical training out of state. Of the 318 Delaware residents admitted to medical school in 1947-66, 130 were in active practice at the end of 1967. Of this total in practice, 44 attended the University of Delaware and 86 did their premedical work out of the state.

Of the 44 University of Delaware graduates, 19 (43%) are practicing in Delaware; 12

(27%) are located in Pennsylvania, New Jersey or Maryland; 13 (30%) are practicing elsewhere.

Of the 86 Delaware residents taking premedical courses out-of-state, 11 (13%) are practicing in Delaware; 31 (36%) are located in Pennsylvania, New Jersey or Maryland; and 44 (51%) are practicing elsewhere.

To be sure, this is too small a total sample to show anything conclusive. Moreover, one can correlate theoretically the persuasions which favored the University of Delaware for premedical training and the inclinations to return here to practice. But, it is more than possible that this correlation is likely to be increasingly significant as the projected increases in high school enrollments over the next ten years predicate at least corresponding increases in numbers of students qualified and disposed to enter the health professions.[8]

Recruitment to Practice in Delaware

However successful the Joint Program may prove to be in increasing the opportunity for Delaware residents to enter medical school, this achievement alone is likely to have little impact upon the current rate of recruitment of young graduates to active practice in Delaware. Indeed, more than half of the states with state-supported medical schools have discovered that since World War II, up to 60% of their own resident-students have subsequently chosen to settle into practice in another state.

It is worth emphasizing that factors apparently most influential in the decision of young physicians on location to practice are those which often are also regarded as indicators of the quality of medical service in the area. These include University affiliated house-staff training programs, continued education of the practicing professions, regional referral services and effective professional and service communication systems.

A major effort of the Joint Program is implementation of such programs and services not only in fulfillment of one of the principal goals of merger which established the Wilming Medical Center, but also one of the first recommendations of the Penrod Report.

As elective courses and clinical clerkships at the Wilmington Medical Center become approvable as to teaching staff and facilities, it is proposed that students at the medical college be assigned here for third and fourth year training, with priority for such assignments reserved for Delaware residents. There will be steady strengthening of house-staff programs and of post-graduate programs for the practicing profession. There will be growing opportunities for graduate programs in the health services based at or related to the University. In view of the importance of Medical Center control of academic appointments essential to these developments, it has been suggested that one extremely opportune and appropriate assurance of steady progress in these programs might be forthcoming through the endowment of professorial chairs in the Center, with the usual stipulation that academic qualifications of the candidate be endorsed by the Medical College or the University.

Affiliation of certain services at the center has already been established informally with Jefferson Medical College, and several groups of undergraduate students have taken their elective months in the Wilmington hospitals. As the role of full-time clinical staff and particularly the importance of full-time departmental chairmen of academic qualifications and rank become not only acceptable but eminently valuable to the medical staff of the hospital, one can visualize a "Delaware Medical Center" with programs in education and research primarily oriented to the enrichment of the quality of medical and health services in the area. For, the philosophy of inquiry and the discipline of learning are increasingly inseparable from the practice of modern medicine; and in communities in which this is not only acknowledged but also implemented, the problems do not include recruitment to active practice. A hopeful goal of the Joint Program is the steady achievement of a major medical school affiliation by the Wilmington Medical Center.

Today this means a great deal more than the strengthening of house-staff programs and reasonable assurance of their full complement year by year; for medical education is reaching into the community in numerous ways in the training of undergraduate and graduate students and in the continued education of the practicing professions.

In this development, which is now nationwide in its scope, Jefferson Medical College enjoys considerable distinction as initiator of programs drawing upon teaching skills of the practicing profession, introducing the teaching methods atmosphere into the community practice of medicine, adapting curricula and teaching methods to the needs and characteristics of the group and the community; and doing all of this at a high level of academic performance without impinging upon primary physician-patient relations. There are endless opportunities and challenges in the Delaware region for such programs. This State of "manageable size and comprehensible scope" is in so many ways a small edition of the nation.

The Unique Challenge in Delaware

The national problems of rural health and medical services are fully demonstrable in Delaware; the center-city problems of health service coverage are equally typical in their urgency and complexity of those in the larger metropolitan centers and states over the nation. The number of physicians in the state in relation to population is about at the national level, although the proportion of doctors under the age of 40 who were trained in foreign medical schools is one of the highest in the country. In nursing and other allied health professions our needs and potential for recruitment and training are comparable with those of the nation. The multiplicity of federal, state and voluntary agencies studying, exploring, planning and expanding are well represented here. But there are some significant differences.

Not the least of these are implicit in the fact that the relatively small size of the state makes it possible to study and assess specific characteristics and constituent elements and parts without losing sight of the whole. There is evidence of unusually well-informed and decisive leadership in the private sector, and of professional involvement in the understanding and solution of these complex problems in the field of health. The merger of three community hospitals in Wilmington is being studied and observed by scores of communities over the nation where the same compelling factors of overhead cost, shortage of skills, and need for educational programs will inevitably lead to similar consolidations in the very near future. Liaison and collaboration among health leadership and programs in Delaware is probably unequalled in any other state. And the State University is prepared to participate actively in the field of health even beyond expansion and implementation of training programs in the health professions.

It would be hard to find a more ready setting or more favorable circumstances for a break-through of major significance to the capacity of health services in a free society to meet the challenge of advancing medical science and the needs— and demands — of an exercised public. For here, if anywhere, such an effort can remain firmly based upon leadership from the private sector and initiative in joint efforts involving the public resources in health and education.

In this perspective, there is irresistable temptation to venture into new dimensions of modern medical center design, and by geographical location, architectural layout and constituent membership to reinforce orientation of health services and resources to comprehensive medical care. In Delaware, one such center could assemble a total spectrum of health and health-related skills, agencies, services and sponsorship into daily interaction and economy of role and program.

Here would be a logical campus for expanding University training and research programs and a laboratory for studies of health service management and design; an acute hospital with emphasis on doctors offices and ambulant patient services for the burgeoning population of northwest Delaware; a concentration of complex diagnostic and therapeutic skills, equipment and facilities to serve the whole state and region; a center for studies of industrial and traffic safety, pollution problems, nursing home and intermediate care, staffing and maintenance problems; a base for statewide ambulance bussing and helicopter services; headquarters for public health services, federal branch offices and programs, voluntary health agencies and professional societies; and long range planning for eventual relocation of state hospitals now largely isolated from education and research.

Above all, here would be the hub of major regional projects designed to develop maximum local health resources and services throughout the state with particular emphasis upon center-city neighborhoods and rural communities — projects for which such versatility of talents and interests as are suggested in this center concept, will have to be mobilized.

If this seems visionary and financially a bit light-headed — it is at least drawn in dimensions and scope which begin to comprehend the enormity and multiple facets of the problem of closing the chasm between advancing medical science and the capacity of health services today to translate its benefits to the people. It makes no pretentions of suggesting a blue print.

Talents, skills and resources of many disciplines and agencies must combine for such a project — and many of these are present on university campuses and have only begun to be tapped. Here again, however, it is interesting to note the variety and number of individuals and departments at the University of Delaware already drawn into several aspects of the broad health service field. In addition to the School of Nursing, The Allied Health Training Programs and The Office of Student Health, there are The Department of Urban Affairs, The Office of Technical Services, The Department of Sociology, The School of Business Administration (through the University Extension Service), The Agricultural Extension Service, and many students in the graduate program.

As a resource to the State of Delaware, perhaps as a clearing house of ideas and programs, and certainly as a challenge to faculty and students concerned with the immediate problems of the community, the University of Delaware is seeking and finding an increasing role in the health fields today — in Education, Research, and Service.

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WHY MEDICAL RECORDS?

"It has been said that preoccupation with the medical record and the computer leads to neglect of the 'humanitarian' side and the 'art' of medical practice. The most humanitarian thing a physician can do is to precisely know what he is doing, and make the patient as comfortable as he can in the face of problems that he cannot yet solve. There have been major humanitarian and sociologic failings in medicine, but almost all of them can be attributed to our poor behavior as scientists as we have dealt with problems out of context and ignored data relevant to good medical care. . . If we accept the limits of discipline and form as we keep data in the medical records, the physician's task will be better defined, the role of paramedical personnel and the computer will be clarified, and the art of medicine will gain freedom at the level of interpretation and be released from the constraints that disorder and confusion always impose."

Medical Records That Guide and Teach, Lawrence L. Weed, M.D., NEJM, Mar. 21, 1968.

GENTAMICIN – A NEW ANTIBIOTIC

● **Gentamicin is a new broad spectrum antibiotic effective against most of the microorganisms causing troublesome hospital infections. It is an aminoglycoside and shares the eighth nerve toxicity and nephrotoxicity of this group of antibiotics.**

William J. Holloway, M.D.

Gentamicin is a new broad spectrum antibiotic developed in the laboratories of the Schering Corporation.* It is derived from the genus Micromonospora and is an aminoglycoside closely related to neomycin, kanamycin and paromomycin. The gentamicin complex is extremely stable at varying temperatures and pH and exhibits a wide spectrum of antibacterial activity. It is an antibiotic particularly appropriate to a present need in clinical medicine in that it is effective both *in vitro* and *in vivo* against most of the microorganisms responsible for the current hospital-associated infections. Gentamicin is active *in vitro* against *Pseudomonas aeruginosa*, and the *Klebsiella-Enterobacter-Serratia Group*, indole-negative and indole-positive strains of *Proteus* species, *Escherichia coli, Staphylococcus Aureus and Streptococcus pyogenes.* Gentamicin shares the broad and antibacterial spectrum of the aminoglycoside antibiotics but it also shares the inherent toxicity. particularly ototoxicity and renal toxicity. Gentamicin has been under investigation for several years in the Infectious Disease Research Laboratory of the Wilmington Medical Center and this report details the clinical experience with this new agent.

Material and Methods

Fifty patients were selected from the medical, surgical and pediatric services of the Wilmington Medical Center for therapy with gentamicin; all were suffering from a bacterial infection and all were considered to be critically ill. The gentamicin was supplied by the Schering Corporation as gentamicin solution (40 mgm cc); the dosage varied from 0.8 mgm to 5 mgm/kg per twenty-four hours, depending upon the severity of the illness. In the early stages of the study, the dosage rarely exceeded 2 mgm/kg per twenty-four hours; but in the past eighteen months, this was increased in the critically ill patients to 5 mgm/kg per twenty-four hours. The duration of therapy varied from 2 to 21 days with a mean value of 8 days. Gentamicin was administered primarily by the intramuscular route, six to eight hourly, although in occasional patients, the initial dose was given intravenously.

Clinical isolates from these patients were tested for gentamicin susceptibility using the disc agar diffusion method and gentamicin discs containing 2, 5, 10 and 30 micrograms per disc. In addition, tube dilution sensitivity studies were performed using the two-fold serial dilution technique and gentamicin standard powder supplied by Schering Corporation.

Dr. Holloway is Director of the Infectious Disease Research Laboratory, Wilmington Medical Center.

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*Garamycin, Injectable, Schering Corporation

A number of wild strains of bacteria isolated in the clinical microbiology laboratories of the Wilmington Medical Center also were tested for gentamicin susceptibility by both the disc-agar diffusion and test tube dilution techniques.

In selected patients, blood and urine specimens were obtained at varying intervals after dosing, for determination of the gentamicin level. In two patients undergoing peritoneal dialysis at the time of gentamicin therapy, aliquots of the dialysate were obtained for assay; these were carried out by the cup agar diffusion technique using *Bacillus subtilis* (ATCC 6633) as the test organism; duplicate serum specimens also were assayed at the laboratories of the Schering Corporation.

Toxicity studies, including hemogram, urinalysis, blood urea nitrogen, serum creatinine, serum bilirubin and serum glutamic oxaloacetic transaminase were performed on most of the patients included in this study. Audiometric examination was carried out before, during and after gentamicin therapy, when the patient's clinical condition warranted such testing. In a few instances, it was also possible to evaluate the caloric response before and after therapy.

TABLE 1

Infections Treated With Gentamicin
50 patients

Type of Infection	Number of Patients
Urinary tract	17
Septicemia	13
Pneumonia	4
Peritonitis	3
Burn wound infection	3
Peritonitis and urinary tract	3
Peritonitis and tracheitis	1
Periotonitis and pneumonia	1
Peritonitis and pneumonia and urinary tract	1
Cellulitis	1
Cellulitis and urinary tract	1
Burn wound infection and urinary tract	1
Otitis (skull fracture)	1

TABLE 2

Pathogen in 50 Patients Treated With Gentamicin

Infecting Organism	Number of Patients
Pseudomonas aeruginosa	29
Pseudomonas and Serratia	3
Pseudomonas and E. coli	1
Pseudomonas and Staphylococcus	1
Pseudomonas and Proteus	1
Pseudomonas and Enterococcus	1
Pseudomonas and Bacteroides	1
Pseudomonas and Staphylococcus and Proteus	1
E. coli	3
Serratia marcescens	2
Proteus mirabilis	2
Klebsiella	1
Enterobacter	1
Unknown	3

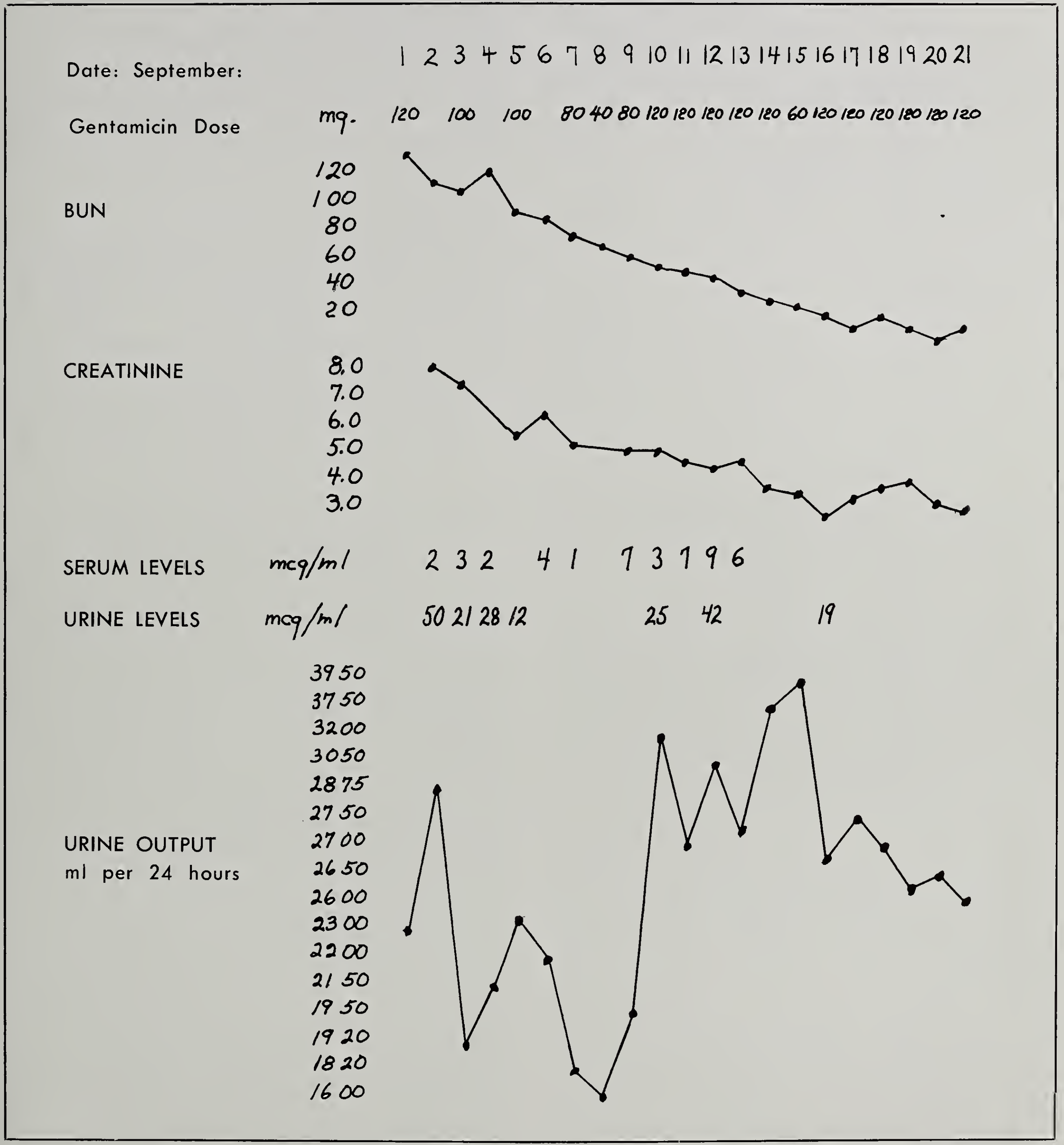
Type of Infection

Table 1 lists the types of infection present in the fifty critically ill patients treated with gentamicin; the majority of whom were suffering from infections of the urinary tract or blood stream. Eight of the patients had a simultaneous infection at more than one anatomical site; seven patients had peritonitis either alone or with other complicating infection. Of thirteen patients with septicemia, the underlying source of infection was recognized in all but two and included infection of the urinary tract in four instances; pneumonia in three, ventriculitis in one, burn wound sepsis in one, a pace-maker in one and a medical intracath in another. Both patients in whom the source of septicemia was unknown were suffering from leukemia. In nine of the thirteen patients with septicemia, the infecting organism was a *Pseudomonas* either alone (four instances) or in combination with other gram-negative rods (five instances).

Infecting Organism

Table 2 lists the pathogens isolated from patients in this study. In thirty-eight of the fifty patients, the primary pathogen was a *Pseudomonas* occurring alone (twenty-nine

PSEUDOMONAS — PYELONEPHRITIS UREMIA
Etiology Unknown



cases) or in combination with another gram-negative rod (nine cases). It will be noted that *Serratia marcescens* was the second most frequently isolated pathogen being responsible for the infection singly or in combination with other gram-negative rods in five instances. In nine of the fifty patients, the infection was due to more than one pathogen, while in three instances the infecting organism was not identified although multiple clinical parameters indicated the presence of bacterial infection.

Underlying Disease

Forty-four of the fifty patients in the study

TABLE 3

Underlying Pathology in 50 Gentamicin Patients

Disease	Number of Patients
Renal disease	12
Blood dyscrasia	8
Extensive burns	5
Paraplegia or quadriplegia	4
Perforation colon	3
Carcinoma	3
Aortic aneurysm repair	3
Abdominal trauma	1
Toxic megacolon	1
Leriche's syndrome, gangrene	1
Cardiac arrest	1
Pacemaker	1
Hydrocephalus	1

were suffering from a serious underlying disease which could be easily identified. These are listed in Table 3.

Results

Twenty-nine of the fifty patients treated with gentamicin experienced a successful outcome and in an additional five patients, a qualified success was obtained; four of these had urinary tract infection and the fifth patient had septicemia due to *Pseudomonas aeruginosa*. In these five patients, the infecting organism was eradicated from the urine or blood stream and the patients showed significant clinical improvement. However, they suffered a subsequent relapse due to the same organism when the antibiotic therapy was discontinued.

Eight patients failed to respond to gentamicin therapy as judged from a clinical and bacteriological standpoint and in an additional eight patients, the results were considered indeterminate; that is, we were unable to assess the role of gentamicin in the final outcome. The results of gentamicin therapy have been listed in Table 4 based upon the type of infectious disease treated.

The one patient with pneumonia who failed to respond to gentamicin therapy deserves further comment. This was a fifty-six-year-old man who experienced post-operative pneumonia associated with septic shock. Because of the clinical picture, the infecting organism was thought to be a gram-negative rod and therapy with gentamicin was instituted. Blood culture taken prior to therapy subsequently grew out a type 14 pneumococcus which was resistant *in vitro* to gentamicin. The patient expired without ever recovering from the septic shock.

Side Effects and Toxicity

Gentamicin was well tolerated when administered by the intravenous or intramuscular route. The patients receiving intramuscular injections complained about discomfort lasting for a few minutes after administration and expressed the usual complaint of generalized soreness after several days of repeated injec-

TABLE 4

Results of Treatment in 50 Patients Treated With Gentamicin

Success	
Urinary tract	11
Septicemia	4
Pneumonia	3
Burn wound infection	2
Peritonitis	1
Cellulitis	1
Peritonitis, pneumonia and urinary tract	1
Peritonitis and urinary tract	3
Peritonitis and pneumonia	1
Otitis (skull fracture)	1
Burn wound and urinary tract	1
Qualified Success	
Urinary tract	4
Septicemia	1
Failure	
Septicemia	3
Pneumonia	1
Peritonitis	1
Peritonitis and tracheitis	1
Cellulitis and urinary tract	1
Peritonitis and urinary tract	1
Indeterminate	
Septicemia	5
Peritonitis	1
Burn wound infection	1
Pyelonephritis	1

tions. However, there was no untoward discomfort or local reaction from the antibiotic administration. A skin rash thought to be typical of a drug eruption developed in one patient; an eleven-year-old boy who had suffered a basilar skull fracture and had spinal fluid otorrhea at the time of admission to the hospital. Chronic otitis media had previously been present in this ear, a culture from which revealed *Pseudomonas aeruginosa.* Since the patient was febrile at the time of admission, complicating intracranial infection was suspected and therapy with gentamicin 50 mgm every eight hours was started. On the third day of therapy, a typical drug eruption developed and the antibiotic was discontinued. Since the patient was afebrile and asymptomatic at this time, no further antibiotic therapy was administered.

There were no significant disturbances in the hemogram, liver function studies, or renal toxicity studies in the patients included in this report. Audiometric evaluation failed to reveal any definite evidence of ototoxicity in any of the patients tested. Two patients suffered transient mild dizziness during gentamicin therapy; in one, this subsided immediately after therapy but in the other patient, the dizziness has persisted. This latter patient, however, had a cholecystectomy performed immediately following the gentamicin therapy and the attending physicians were of the opinion that he suffered a mild cerebral vascular accident during the operation. A follow-up of over one year reveals that the patient occasionally still has episodes of mild imbalance but it is in no way incapacitated.

Laboratory Data

In selected patients, serum gentamicin levels were measured at varying intervals following intramuscular administration of the antibiotic. In patients with normal renal function, following a 60 mgm dose of gentamicin, the serum level at one hour ranged from 1.1 to 3.2 mcg/ml. At the end of a four hour period, this level had dropped to 0.8 to 0.6 mcg/ml. In patients with impaired renal function, the serum gentamicin levels one hour following a 60 mgm dose ranged from 3.2 to 8.4 mcg/ml and at the end of a four hour interval, the gentamicin serum level ranged from 1.7 to 3.8 mcg/ml. The variation in serum levels appears to be most closely related to urine output. Gentamicin appears to be cleared rapidly by the kidneys and blood obtained six hours following an intramuscular dose, usually revealed no detectable level of the drug.

We have noted a lack of tendency for gentamicin to accumulate to high levels in the serum of patients with impaired renal function. The level of the blood urea nitrogen or the serum creatinine is not a satisfactory guide to gentamicin dosage in patients with satisfactory urinary output. Figure 1 outlines the experience with a fifty-two-year-old man with uremia associated with urinary tract infection. It will be noted that even when the blood urea nitrogen and serum creatinine were greatly elevated, the urine output and urinary gentamicin concentration remained quite high. This had the apparent effect of preventing the accumulation of gentamicin in the serum and required increasing the dose of gentamicin to obtain serum levels high enough to assure a bactericidal effect against the infecting organism. Unfortunately, urine creatinine levels were not done on the urine specimens but this experience might suggest that the glomeruli clear gentamicin at a faster rate then they clear creatinine.

Table 5 lists the gentamicin dosage, blood urea nitrogen, serum gentamicin level and dialysate gentamicin levels in a twenty-one-year-old woman with chronic glomerulonephritis and anuria. A total of 240 mgm of gentamicin was given over a four-day period prior to peritoneal dialysis. Aliquots of five dialysates were assayed for gentamicin concentrations and the levels were found to range from 1.18 to 6.6 mcg/ml. This would seem to indicate that gentamicin can be dialyzed by the peritoneal route.

Antibacterial Activity

The *in vitro* activity of gentamicin against various gram-positive and gram-negative organisms was determined using the disc agar diffusion and the test tube dilution technique.

TABLE 5
Gentamicin Therapy — 21-Year-Old Woman
Pseudomonas Pneumonia, Anuria

Day	1	2	3	4	5	6	7	8	9	10
Blood Urea Nitrogen	132	194	140	228		(creatinine) 20.6	55	80		78
Daily Gentamicin Dose MG	80	80	40	40	40		80	80	80	80
Serum Gentamicin Level MCG				9.0	8.5		8.2			13.5
Dialysate — Gentamicin Level MCG		(Day 6)		No. 1. 6.6	No. 2. 2.0	No. 3. 3.9		No. 4. 1.1	No. 5. 2.6	

The microorganisms tested in this study were wild strains obtained from the clinical microbiology laboratory of the Delaware Division of the Wilmington Medical Center. A 10 mcg gentamicin disc was used in a system utilizing a standardized inoculum-disc agar diffusion procedure. One hundred strains each of *Staphyloccus aureus*, *Escherichia coli*, *Klebsiella - Enterobacter* and *Pseudomonas aeruginosa* were tested by this method and all were found to be susceptible to gentamicin. Seventy-eight strains of *Proteus* species were tested for gentamicin susceptibility and all were susceptible. Twenty-five strains of *Serratia marcescens* were tested against a 10 mcg disc and all strains were gentamicin susceptible. One hundred strains of enterococci were likewise tested for gentamicin susceptibility and only six strains were found to be sensitive while 94 strains were resistant to this antibiotic.

Table 6 lists the minimal inhibitory concentrations of gentamicin against susceptible organisms using the two-fold serial test tube dilution technique. As will be noted from this table, the bactericidal level varies little from the bacteriostatic level indicating that gentamicin should be classified as a bactericidal antibiotic.

Discussion

While only twenty-nine of the fifty patients reported in this study experienced an unquestionably successful outcome following gentamicin therapy, it should be pointed out that all of the patients were suffering from serious infections and a majority of these had *potentially fatal* underlying diseases. In addition, during the early phase of this study, the dose of gentamicin used in critically ill patients was too low to anticipate an adequate blood level of the drug or to assure a successful outcome.

At the present time, gentamicin must be considered the drug of choice in patients with serious infections due to strains of *Pseudomonas*, *Serratia* or indole-positive *Proteus* species. It has been suggested by Martin and co-workers[1] that gentamicin is the drug of choice in the treatment of gram-negative sepsis in hospitalized patients. The fact that the gentamicin spectrum includes *Staphylococcus aureus and Streptococcus pyogenes* suggests that it may be the drug of choice in the treatment of any severe sepsis of unknown cause in a hospitalized patient. In our institution, strains of *Serratia marcescens* isolated from clinical sources are almost always resistant to the antibiotics available for clinical use with the exception of gentamicin.

In spite of the potential toxicity of gentamicin, a low incidence of side effects was noted in the patients treated in this series. This is particularly gratifying since many of the patients were suffering from impaired renal function. Vestibular and ototoxic side effects were particularly non-existant and we were unable to detect any evidence of nephrotoxicity.

TABLE 6
GENTAMICIN
Minimal Inhibitory Concentration

ORGANISM	NO. OF STRAINS	BACTERIOSTATIC RANGE	BACTERIOCIDAL RANGE
Escherichia coli	10	0.39 - 0.78	0.78
Klebsiella-Aerobacter	10	0.19 - 0.39	0.19 - 0.78
Pseudomonas	10	0.19 - 1.56	0.39 - 3.12
Staphylococcus	10	0.19	0.19
Group A Streptococcus	5	0.19	0.19
Proteus species	10	0.78 - 1.56	1.56 - 3.12
Serratia marcescens	5	0.78	1.56

Gentamicin is excreted exclusively by the kidney through the mechanism of glomerular filtration but we noted little evidence for gentamicin to accumulate in the serum even with marked impairment in renal function. Based on the case cited previously, we suggest that one cannot depend upon the blood urea nitrogen level or the serum creatinine to ascertain the proper dose of gentamicin in patients with impaired renal function. If facilities are available for monitoring the gentamicin serum levels, this would of course offer the most accurate guide to selection of proper dosage. However, when this is not available, evaluation of the creatinine clearance in the critically ill patient would appear to give some guidance as to the efficiency with which the kidneys clear gentamicin. If the creatinine clearance is normal and the urinary output adequate, the usual dose of gentamicin should be administered, regardless of the degree of azotemia. The potential danger in not monitoring the dose of gentamicin is that inadequate amounts of the drug will be given and serum levels will not be sufficient to produce tissue levels greater than the minimal inhibitory concentration of this antibiotic for the infecting organism.

The recommended dose of gentamicin in patients with normal renal function varies with the type of infection being treated. In patients with urinary tract infection, a dose of 1 to 2 mgm/kg of body weight over a 24-hour period should be adequate. Patients with other systemic infections should receive gentamicin in a dosage approximately 3 mgm/kg of body weight per 24 hours. Patients with critical life-threatening infections should receive 5 mgm/kg per 24 hour in a divided dose, preferably given by the intramuscular route at six hour intervals. It would not be wise to exceed a dose of 5 mgm/kg of body weight in a 24-hour period except in an unusual situation in which the clinician is able to carefully monitor the serum gentamicin level.

Gentamicin appears to be a valuable addition to the number of antibiotics available for the treatment of bacterial infection and for this reason it is essential that it be used very discriminately. There is the possibility that widespread use of this antibiotic might lead to the development of strains of microorganisms resistant to its action. This is particularly true in the hospital environment where the propagation of resistant gram-negative and gram-positive microorganisms can occur readily. Clear-cut indications for the use of gentamicin should be present before it is considered as a therapeutic agent. A topical preparation is commercially available at the present time and is used fairly widely in some hospitals. It therefore appears possible that extensive use of gentamicin as a local agent might play a role in instigating or propagating resistant microorganisms. Serious consideration should be given to the possibility of curtailing or discontinuing the use of this topical formulation of gentamicin.

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CPC Wilmington Medical Center

Chest Pain, Heart Block and Rapid Onset of Heart Failure

Gerhard Hartenauer, M.D., *Discusser*
Patrick F. Ashley, M.D., *Pathologist*
Leonard P. Lang, M.D., *Editor*

Presentation of Case

This 59-year-old Negro woman was admitted to the hospital because of severe chest pain and shortness of breath. For at least ten years, she had been known to be hypertensive and for approximately the same length of time had experienced chest pain, the characteristics of which were not specified. On the day before admission, she developed severe left precordial pain with radiation down the left arm. This pain was accompanied by dyspnea and some sweating. When the pain persisted she consulted a physician and was admitted to the hospital.

In addition to the past history of hypertension and chest pain, diabetes was found in 1961, and was treated with insulin and an oral hypoglycemic agent. She had been obese for many years.

On admission, her temperature was 97.6 F.; pulse, 100; blood pressure, 106/80 mm Hg; and respiratory rate, 36 per min. She was cold and sweating. The neck veins were slightly distended at an elevation of 45 degrees and there were bilateral basilar inspiratory rales. The first heart sound varied in intensity and the rhythm was irregular. The liver edge was palpated three fingerbreadths below the right costal margin, was smooth and not tender. There was no evidence of peripheral edema.

The electrocardiogram showed complete A-V dissociation with a ventricular rate of 90 and an auricular rate of 134. The QRS complexes were described as flared with marked S-T segment elevations. The hematocrit was 48%, with hemoglobin of 15.4 gm . WBC was 15,937 with 67% neutrophils, 4% band forms and 29% lymphocytes. There was a 1+ albuminuria and 4-5 RBC and 15-20 WBC/hpf. The SGOT was 315 and the LDH 750 units. The BUN was 30, cholesterol 280, and a random blood sugar 200 mgms/100 ml. The chlorides were 90; sodium 136, and potassium 3.7 mEq/1.

A temporary transvenous pacemaker was inserted later on the day of admission. This was kept on stand-by status to be used in the event bradycardia developed. By the evening of the same day her blood pressure was unobtainable inspite of the use of Aramine and Isuprel. She was digitalized without any response and expired in the early hours of the following day.

Dr. Hartenauer's Diagnosis

I would like to abandon the routine form of the Clinico-Pathological Conference in that I will present to you from the very beginning the final clinical diagnoses at which I arrived. The diagnoses are as follows:

I. *Acute Myocardial Infarction*, extensive-probably secondary to an occlusion of the right coronary artery (septum?) with:

1. Cardiogenic irreversible shock.
2. Complete heart block, idioventricular rhythm with competition of several ven-

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Dr. Hartenauer is an Associate Physician, Department of Medicine, Wilmington Medical Center.

Dr. Lang is Senior Physician, Department of Medicine, Wilmington Medical Center.

Dr. Ashley is a Senior Pathologist, Wilmington Medical Center.

tricular pacemakers and possible combined right and left bundle branch block.
3. Congestive heart failure.
4. Possible metabolic acidosis.

II. *Diabetes Mellitus.*

III. *History of Hypertensive Cardiovascular Disease.*

Discussion

I would like to discuss in a little bit more detail the presenting symptoms given in the case history. An attempt will be made to utilize the symptoms for the arrival of my final clinical diagnoses.

The chest pain described is certainly quite typical as far as the quality or the location is concerned. We were also informed that the patient had previous episodes of chest pain. The quality of the chest pain, however, was not explained satisfactorily. The duration of the chest pain finally led to the patient's admission to the hospital. Of interest would have been to know whether respiration or body position had any influence on the chest pain. The radiation of the pain was quite typical. Cough or hemoptysis was not mentioned. The existing shortness of breath was pretty well documented by the respiration rate of 36. The previous history of hypertension for ten years and diabetes mellitus since 1961 certainly are highly compatible with coronary artery disease. The obesity could be considered an additional factor. Since the patient showed some sweating on admission and since the systolic and diastolic blood pressure levels were low normal in a patient of long-standing hypertensive cardiovascular disease, one wonders about some degree of shock which later on during the course of her illness became more obvious.

All the above mentioned symptoms and the patient's history are certainly highly suggestive for coronary artery disease with a possibility of a recent myocardial infarction.

I would now like to review the physical findings in order to see how they fit into clinical diagnoses.

The pulse was 100 and irregular. Here the question would be, does some kind of arrhythmia exist or are we dealing only with frequent premature extrasystoles. The differentiation of radial and apical pulse was not given. There was nothing mentoned about the quality of the pulse. The temperature was 97.6. The skin was cold and some sweating was observed. There was some slight neck vein distention at an elevation of 45 degrees. Bilateral inspiratory rales were heard over both bases. The liver was enlarged three fingerbreadths below the right costal margin but was not tender. This could be either the result of some congestive heart failure or of the co-existent diabetes mellitus. No peripheral edema was seen, interestingly enough. The first heart sound was described as being variable in intensity. Here the question of complete heart block has to be raised immediately, since change of the first heart sound is quite typical for this type of arrhythmia.

I believe that the presented physical findings are again, as were the symptoms, highly suggestive of coronary artery disease with an insult to the myocardium itself and possible early cardiogenic shock, since the blood pressure was low and the peripheral blood flow seemed to be impaired on clinical grounds and since the cardiac output appeared to be reduced as well. The question of congestive heart failure was answered by the physical findings, while an answer to the possible existing arrhythmia would have to wait for electrocardiographic examination.

I will now discuss the ancillary findings so we may as well switch immediately to the electrocardiogram since this turned out to be the most difficult piece of information to unwind.

The case history mentioned the electrocardiographic diagnosis of a complete A-V dissociation with a ventricular rate of 90 and an atrial rate of 134.

My interpretation of the electrocardiogram led to a different diagnosis, namely;

a. Complete heart block with an atrial rate of 136 and a ventricular rate of 75-100.
b. Idioventricular rhythm with competition of several ventricular pacemakers.

c. Combined right and left bundle branch block.

Under Complete Atrial-Ventricular Block, we understand a completely interrupted conduction of the impulse between the atria and the ventricles. The atria always beat faster than the ventricles.

Under Idioventricular Rhythm, we understand a complete ventricular automatism. The ventricles continuously respond to a pacemaker located somewhere in the ventricular tissue.

Most of the time the ventricular pacemaker located in the upper portion of the interventricular septum or just below the bifurcation of the bundle of His.

Idioventricular rhythm is most commonly seen as a result of complete heart block. The QRS complexes are widened or bizarre, notched, and the ventricular rate is usually about 30-35 per minute. Idioventricular rhythm is usually associated with severe myocardial damage.

The ventricular rate in our case fluctuates between 75-100. This could be the result of the present cardiogenic shock, as the result of congestive heart failure or as a result of the probably existing metabolic acidosis. The possibility of the existence of a combined right and left bundle branch block has to be mentioned because of a large number of published observations, including histologic studies. The great majority of cases of complete A-V block is caused by bilateral bundle branch block. Experimentally, surgical interruption of both branches causes complete A-V block. Right heart catheterization in patients with left bundle branch block has resulted in transient complete A-V block from pressure of the catheter against the right side of the septum causing transient right bundle branch block. Criteria for suspecting bilateral bundle branch as cause of A-V block includes the following:

Since there is a greater tendency to automatism in the upper regions of the conducting system and since an idioventricular rhythm is likely to originate just below the area of A-V block, a low (widened and bizarre) ventricular pacemaker should indicate with fair probability that the A-V block may be caused by bilateral bundle branch block. The rate of the idioventricular pacemaker was found to be slower when both branches were destroyed, giving strong but not definite evidence of bilateral bundle branch block.

Furthermore, alternating left and right ventricular complexes in complete A-V block would favor strongly, but not absolutely, bilateral bundle branch block.

The laboratory data given (especially the serum enzyme studies) are highly compatible with recent myocardial infarction. The urinalysis raises the question of a possible chronic pyelonephritis. There was no evidence of diabetic acidosis.

As far as differential diagnosis is concerned, we should consider diseases involving the chest as well as diseases involving the abdomen. The following diseases came through my mind:

1. Pulmonary embolism.
2. Pericarditis, myocarditis.
3. Spontaneous pneumothorax.
4. Spontaneous rupture of the esophagus.
5. Dissecting non-syphilitic aneurysm of the aorta.
6. Spontaneous interstitial emphysema of the lungs.
7. Syphilitic aortitis with aortic aneurysm.
8. Pneumonia.
9. Pleurisy.
10. Hiatal hernia.
11. Carcinoma of the lung with invasion into the pericardium.

As far as diseases of the abdomen are concerned, I believe it is worthwhile to consider the following:

1. Perforated peptic ulcer.
2. Cholelthiasis.
3. Cholecystitis.
4. Pancreatitis.
5. Intestinal obstruction.
6. Tabetic crisis.

None of the above mentioned diagnoses could stand up long enough to explain the history, the physical findings and ancillary findings in this case.

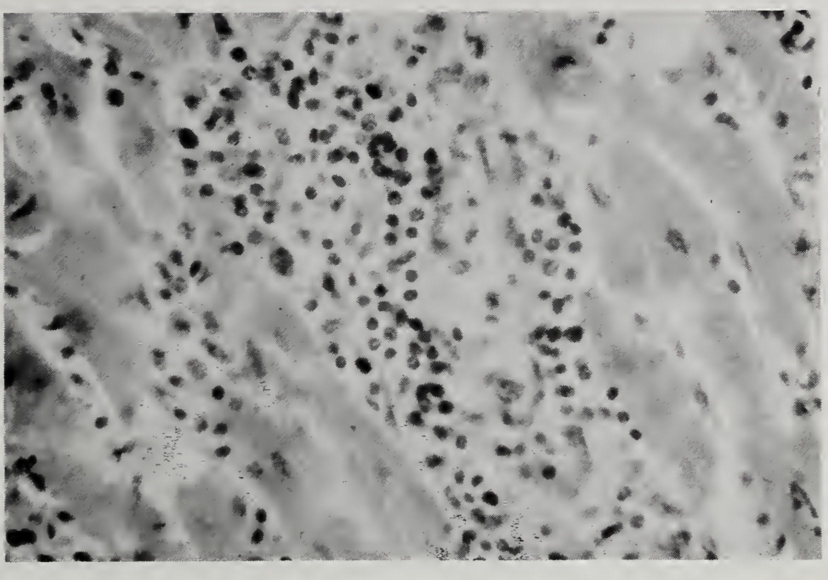

Figure 1

(Medium Power). Myocardium —Note interstitial infiltrate of mononuclear cells, chiefly lymphocytes.

Pathological Discussion

Dr. Patrick F. Ashley:

This case was of interest because all the clinical and laboratory data apparently were in keeping with an acute myocardial infarction, but this condition was not found at autopsy. The heart was enlarged weighing 500 grams. The coronary arteries were sectioned as completely as we know how, but no occlusions were demonstrated. There were a few eccentric atheromatous plaques but in general, the lumens were widely patent throughout. The heart was dilated and flabby and the myocardium of the entire left ventricle including the septum presented a rather peculiar tannish-brown mottled appearance. We took microscopic sections from both ventricles, atria and septa. All showed evidence of a diffuse myocarditis. As a whole, the muscle fibers were intact but in some areas there were secondary degenerative changes with smudgy degeneration and occasional falling out of cells with replacement by macrophages. The infiltrate was noticeable in that there were essentially no polymorphonuclear leukocytes within it. Most of the cells consisted of lymphocytes, some plasma cells, macrophages and occasional eosinophils (Figure 1).

The pathological findings were in keeping with an inflammatory myopathy or myocarditis. The etiological factors to consider in myocarditis are numerous as can be judged from the following classification proposed by Manning at the Armed Forces Institute of Pathology.

1. Myocarditis due to infectious agents.
2. Idiopathic (Fiedler's) myocarditis.
3. Myocarditis in collagen diseases.
4. Myocarditis due to physical agents, chemical poisons, drugs, and metabolic disorders.

When we add up all the possibilities of infectious agents, physical agents, drugs, etc. it is no wonder that the statement is often made that myocarditis is the most common of all heart diseases. It would appear that myocarditis caused by infectious agents is the most common type. In some autopsy series, 10% of the cases showed evidence of previous myocarditis. In the case under discussion, the inflammatory process appeared limited to the heart and this would fit the category of Fiedler's myocarditis which is considered a primary or isolated myocarditis. The etiology is unknown but has been variously ascribed to bacterial, viral and allergic mechanisms. I do not believe there is any relationship between the myocarditis and diabetes although diabetics who have episodes of hypokalemia can develop an interstitial myocarditis.

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SAD FACTS MAKE SORRY FICTION

The Delaware State Tumor Registry

• Twenty-one years of cancer reporting experience in Delaware has not produced a source of epidermically valid statistics. Some reasons and suggestions are proffered.

Barbara B. Rose, M.D.

The Delaware State Tumor Registry came into existence in 1947. Having been in continuous operation since then, it could be described as having reached its majority this year.

Who reports to the Delaware State Tumor Registry? How accurately does the Registry reflect morbidity and mortality data relative to cancer? Recently, in an effort to gain some understanding of the reliability of statistics based on it as a source of data it was decided to review some aspects of the registry.

Table No. 1 presents the number and source of reports of cancer to the State Tumor Registry for the years 1963-1967 inclusive.

It is apparent that no reports have been received from the following hospitals in the last five years: Emily P. Bissell, Kent General, Dover Air Force Hospital and Nanticoke Hospital. Riverside Hospital has not reported for the past four years. Milford Hospital has sent no reports in the past two years. The five physicians who have reported individually from New Castle and Kent counties have certainly earned the gratitude of the registry staff for their cooperation. It seemed doubtful, however, that their reports could make up the suspected deficit in reporting from theirs or other geographic areas in the state.

How accurately does the registry reflect morbidity and mortality data relative to cancer? With an increasing population one might expect to find an increased incidence of cancer (Table 2).

Thus, despite a 74% increase in the Delaware population between 1947 and 1967, cancer incidence, as reflected by reports to the State Tumor Registry, is decreasing. On the other hand, the crude cancer death rate is increasing. Such statistics offend not only one's sense of the probable but challenges one's chauvinism as regards medical progress and quality of medical care in Delaware. The more acceptable conclusion is that the State Tumor Registry provides an inadequate reflection of both cancer incidence and mortality in Delaware.

Since the deficit in morbidity data of the State Tumor Registry seemed impossible to obtain, an attempt was made to evaluate the deficit in mortality data.

Editorial Comments
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In addition to maintaining files on reported cases of cancer, the State Tumor registry clerk in Dover each morning checks the obituary lists against her files. She also regularly reviews all death certificates registered in the State Vital Statistics office. Where the death certificate states that an individual had cancer at the time of death, she checks this certificate against her file of reported cases. If the case has never been reported to the Tumor Registry, it is placed in a file of unreported cancer cases.

Table No. 3 lists, by years and county of residence, the number of *unreported* cancers. These data were obtained from a review of primary and secondary causes of death as

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Dr. Rose is Director, Division of Chronic Disease, Delaware State Board of Health.

TABLE 1

Reporting Sources of Cancer 1963 - 1967, Inclusive

Reporting source	1963	1964	1965	1966	1967
New Castle County					
Carpenter Memorial Clinic	370	400	430	435	722*
Delaware Hospital	258	355	394	129	61
Wilmington General Hosp.	227	197	271	311	116
St. Francis Hosp.	0	0	77	110	100
VA Hospital	82	124	115	70	59
Emily P. Bissell Hosp.	0	0	0	0	0
Riverside Hosp.	19	0	0	0	0
2 M.D.'s individually	67	97	49	69	102
Kent County					
Kent General	0	0	0	0	0
Dover Air Force Base Hosp.	0	0	0	0	0
3 M.D.'s individually	35	23	26	61	26
Sussex County					
Milford Hosp.	50	36	32	0	0
Beebe Hosp.	83	90	76	77	0
Nanticoke Hosp.	0	0	0	0	0
Total	1191	1322	1370	1262	1222

**Reporting for Delaware, Wilmington General and Memorial Divisions as of June 1967.*

recorded on all Delaware resident death certificates during a five-year period.

Death certificates are, understandably, often regarded as a doubtful source of reliable data. Accepting this premise, there still remains the discouraging fact that for the past five years approximately one third of those residents who died and had a diagnosis of cancer entered on their death certificate, were unknown to the State Tumor Registry.

The combined population of Kent and Sussex counties represents 30 per cent of the total state population, yet, in 1967, 75.6% of the unreported cancer cases resided in those counties. The comparable figures for 1966 and 1965 are 62.3% and 81.2% respectively. It is in these two counties that, with the exception of Beebe Hospital, no hospital cancer registries are maintained. Thus, in Kent and Sussex counties, the burden of reporting is on the individual physician.

It should also be noted that 1966 was a year of some confusion pending merger of the Delaware, Memorial and Wilmington General Hospitals into the Wilmington Medical Center. By the end of 1967 an efficient system of reporting for the three divisions had been set up at the Carpenter Memorial Clinic and it is anticipated that for 1968 the figure for unreported cases in New Castle County will show a considerable decline.

Discussion

At this point I would like briefly to discuss the subject of disease registries both from the point of view of purpose and of operation.

In the past several years, stimulated among other factors by the inducement of Federal financial aid, much interest and planning is being focused on Heart, Cancer and Stroke programs. In 1967, the Divisions of Regional Medical Programs apparently received over thirty applications specifically requesting funding for stroke and multiple disease registries. Predictably, a Sub-Committee Task Force was set up to study the feasibility and value of stroke registries for Regional Medical

TABLE 2

Year	Pop.	No. of CA.'s Reported*	Incidence per 10^4 pop.	Total No. CA. Deaths**	CA. Death Rate/10^4
1947	302,613	764	25.2	410	13.5
1967	526,414	1222	23.2	858	16.6

**From Delaware State Tumor Registry*

***From office of Vital Statistics, Delaware*

Programs. The Task Force devoted considerable thought to past experience with registeries in general and its report was published in September 1967.[1]) Some of the salient points which were made will be considered here.

The Task Force approached the problem in a logical manner by first considering what to date had been accomplished by "disease registries." Since cancer has been a disease category where widespread attempts have been made to establish registries, experience in this category was heavily leaned on.

It was pointed out that individual hospital registries serve their best purpose in providing a medical management tool and yield information as to the quantity of medical care for cancer patients in that institution. Furthermore, through the mechanism of follow up and recheck, the individual patient may well benefit by the maintenance of a hospital registry. It should be recognized, however, that statistical studies based on such registries are in some instances of doubtful merit as there is a built-in bias and the population base can not be truly defined.

The *centralized* or *super-registry* on the other hand should receive its data from institutional registries and is population-based and epidemiologically-oriented. It can provide incidence and prevalence data and an understanding of areas where increased efforts for cancer detection and control may be necessary. Hopefully, it may also provide an impetus for basic research. Unlike the hospital registry, its potential benefit will be realized by a subsequent group of cancer patients, rather than those who make up the current roster.

The conclusion was reached that, "The value of disease registries — *super registries* or other species — varies appreciably with the original goals and abilities to satisfy them." It is from the latter two points of view that I would like to consider the Tumor Registry of the State of Delaware.

Original Goals of the State Tumor Registry

On April 9, 1947, Senate Bill #164 appropriated funds "to be used for the detection of cancer, for research in cancer and for other purposes related to cancer prevention and control." The passage of the bill had resulted from recommendations and joint study made by such interested groups as the Cancer Committee of the Medical Society of Delaware, The Delaware State Board of Health and the Delaware Division of the American Cancer Society. Earlier that year the Medical Society of Delaware had passed three recommendations relative to cancer control. Two of the recommendations were aimed at the establishment of diagnostic and investigative clinics, as well as increased support for existing or additional treatment facilities. The third was for: "The establishment of a central registry directed toward accurate recording of cancer morbidity and mortality and statistical research." Thus, in the modern parlance of the Stroke Registry Task Force, the original goal for the State Tumor Registry would seem to have been the creation of an epidemiological rather than a medical management tool.

By July the 10th of that year, the Division of Cancer Control was established by the State Board of Health and the combined Lay and Medical Advisory Committee recommended that morbidity record collection is a proper activity of the State Board of Health, that

TABLE 3

PREVIOUSLY UNREPORTED CANCER, FROM DEATH CERTIFICATES
Delaware Residents by County and Year

Year	Total* CA. Deaths	Counties No. Unknown to State Registry New Castle	Kent	Sussex	Total State	% Never Reported
1963	770	203	41	77	321	41.7
1964	762	177	28	51	256	33.5
1965	817	149	50	71	270	33.0
1966	875	201	37	86	324	37.0
1967	858	160	43	78	281	31.6

**Office of Vital Statistics, State of Delaware*

uniform blanks be prepared for medical examinations relative to cancer, and that a survey should be undertaken by that agency.[2]

Such was the conception and creation of the Delaware State Tumor Registry. The State Board of Health, with the authority granted it by Title 16, Section 504, declared cancer to be a notifiable disease.[3] In 1968, cancer is still a notifiable disease, which means that reporting of known cancer cases is a legal responsibility of all practicing physicians in the state.

Today the American College of Surgeons deems a Cancer Registry of sufficient importance that the maintenance of such a registry is a pre-requisite for approval of a hospital based cancer program. The only hospitals in Delaware which are so approved and maintain a cancer registry are:

Wilmington Medical Center
Veterans Hospital
Beebe Hospital

In each of the above institutions a copy of a pathological diagnosis of cancer is sent directly to the hospital tumor registry, which in turn forwards the pertinent data to the State Tumor Registry. Follow-up data on previously reported cases are also regularly forwarded. The principle of strict confidentiality is observed by all those who work with registries and no information on individual cases is released except to authorized individuals. Physicians working in the above institutions have their legal responsibility fulfilled for them by the hospital cancer registry, which also works on the problem of follow-up. In most instances the death of a cancer patient reported from these hospital registries is usually known to the State Tumor Registry prior to the latter's routine search of death certificates. Unfortunately, such is not the situation in all hospitals of the state. Where there is no hospital based registry, practicing physicians have the added burden of being legally responsible to report the case to the State Tumor Registry in Dover. Forms for this purpose are available on request from that office and the registry clerk will follow-up on his report by a letter of inquiry to the reporting physician the following year. In Dover all reported cases are checked for duplicate reporting.

The State Tumor Registry in 1968

At this point it should be recognized that the seed that was planted in 1947 has grown into a hybrid plant. The State Tumor Registry is a "central" or "super" registry in terms of receiving data from hospital based registries which are maintained as a medical management tool. In addition it is supposed to fulfill the latter role for individual physicians to produce a body of information that could be used for sound epidemiological studies.

It is apparent that there has been a paucity of reporting from Kent and Sussex counties, an occurrence which is frequently attributed to the fact that "treatment is rendered in Wilmington and the cases are reported from there." Cancer cases are, however, allocated and coded in Dover by place of residence, as well as by the hospital where treatment was given and by the reporting agent. It would seem more logical to assume some of the following factors might account for the delinquency in reporting cases of cancer:

1. Failure on the part of many physicians to recognize that it is their legal responsibility to report all cancers known to them.
2. Fear of legal repercussions resulting from disclosure of confidential information.
3. Pressure of medical practice. In Kent and Sussex counties the physician to population ratio is only half that of New Castle County.
4. Where there is no institutional policy of maintaining a cancer registry, reporting is sporadic.

Delaware by virtue of its size and varied geographic and demographic characteristics could provide interesting and meaningful data from an epidemiological viewpoint. The State Tumor Registry has the potential of providing a basis for research studies, as well as the practical use of highlighting the need for increased efforts at the detection and control of cancer in certain high risk groups or even geographic areas.

On the surface, the solution seems simple. The attending physician usually depends on ancillary medical specialists, particularly pathologists, for a definitive diagnosis of malignancy. Probably all but a very small percentage of cancer cases are known to pathologists who are relatively few in number in our state. Thus, the basic data could conceivably be obtained promptly and with relative ease from a small number of primary sources.

Admittedly, pathologists infrequently see patients. Where no policy has been spelled out, the pathologist may be reluctant to assume the responsibility of reporting a case of malignant neoplasm, the report being based solely on tissue from a patient whom he has never seen. He may well consider the reporting of the malignancy to be the responsibility of the private physician. The result is that the sources of information about cancer incidence are immediately multiplied, diffused geographically and dependent on new factors such as ignorance of the law, etc., which were cited earlier. The obvious result is either delay or total failure to report.

The August 1968 morbidity report states that to date this year 1103 neoplasms have been reported to the State Tumor Registry. This is in contrast to 681 neoplasms reported for the comparable period in 1967. The increase is attributable to the consolidation of reporting sources and reorganization of reporting practices achieved by the Wilmington Medical Center. Thus, 1968 may well be a banner year for the State Tumor Registry. However, unless a comparable improvement can be achieved by other hospitals in the state, the State Tumor Registry will not truly reflect cancer incidence in Delaware.

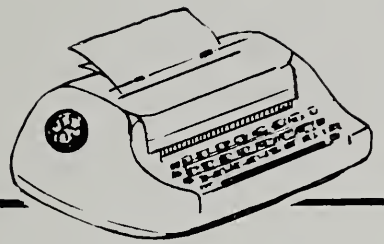
Conclusion

At a time when there is a great need for efficient use of medical services, a good State Tumor Registry could well provide a sound basis for decisions regarding future course of action. Possibly it is time for the Delaware State Medical Society to set up its own task force.

The problems for study are many but among the most urgent are:

1. A reassessment of the reasons for maintaining a central or State Tumor Registry in Delaware, followed by a clear definition of the projected goals should such a registry be deemed useful.
2. Legal immunity for those reporting to a tumor registry.
3. To devise acceptable and realistically workable methods by which complete reporting of malignancy could be accomplished in Delaware. Such input should, if possible, come from hospital-based registries.
4. To study the feasibility of automative data processing so that prompt and complete retrieval of information would be possible.
5. Methods of physician education in terms of availability and use of such data for either research or as a basis for planning for future delivery of medical services.

Continued on Page 103



Special Reports

INTERNATIONAL SYMPOSIUM ON RADIATION THERAPY

Memorial Sloan-Kettering Cancer Center, March, 1968

JOHN F. HYNES, M.D.

The morning session was devoted to descriptions of the radiation therapy centers in various countries. Sir Brian Windeyer, Middlesex Hospital, London, England, reported that in England treatment centers associated with a university complex are considered the best arrangement. A radio-therapy center is not efficient with less than 600 patients per year, 1500 to 2000 patients would be ideal with perhaps four radio-therapists plus graduate students, trained nursing personnel and technicians. They estimate that the cancer detection center should have 60 beds per thousand cases per year.

In Denmark, Dr. Helge Johannsen, Radiumstation, Copenhagen, calculated that they need 13 beds per hundred thousand of population. Currently they have a project for randomized treatment of cancer of the cervix. They now have about 250 patients in all stages I to IV treated by surgery and a similar number treated by radiation therapy. (There are five radio-therapy centers in Denmark so that no patient is more than 50 miles from a treatment center.)

Dr. Guy Robbins, Memorial Hospital, New York, described the community responsibilities of the cancer hospital. Memorial Hospital has close affiliation with many other hospitals and assists them with irradiation treatment planning. The data is fed to Memorial by a teletype system and an accurate recommendation for radiation doses is returned to the hospital within a matter of hours. One such hospital is in San Francisco, others are closer to New York City. Their consulting services include radiotherapy, physics of radiation, interchange of staff with joint clinics and conferences, exchange of residents and two-week fellowships for nurses, medical specialists and technicians. He noted that at present death rates some 48 million Americans now living will die and 60 million will recover from cancers.

Dr. Clifford Ash, Ontario Cancer Center, Toronto, Canada, discussed some of their problems. Ontario is larger than Texas, so although there are a number of therapy centers (7), some patients may still be as far as 400 miles from the nearest one.

Dr. Basil Hilaris of Memorial Hospital discussed *Techniques of Interstitial and Intracavitary Irradiation.* He pointed out that one advantage of the use of (gold) seeds in unresectible lung cancer is to convert an exploratory operation to an effective cancer therapy. The hospitalization of patients was much shorter than for a course of external irradiation and reasonable palliation could be obtained. Dosage would range from a maximum of 20 thousand rads, an attempt being made to distribute at least 5000 rads throughout all the tumor.

Dr. John Laughlin of Memorial Hospital spoke on the *Realistic Treatment Planning* and pointed out the importance of irradiating a small as possible volume of tissue with a high dose. Computer calculation was very helpful.

At Memorial Hospital, the distribution of radiation treatment per year is now: telecobalt, 25 thousand; megavoltage, 11,000; batatron electron beam, 8,000; orthovoltage, 50 to 250 kv, 3,000. With present equipment they can treat five patients an hour on the telecobalt machine, seven per hour on the megavoltage linear accelerators with the electron beam. The present annual case load is about 1900 new and 1600 previously treated patients.

Currently, about 250 treatments per day are given. If automation were used, this could be doubled. The distribution per year of cases is approximately: breast, 850; lung, 330; head and neck, 370; lymphoid, 800; gynecologic, 200, Gu, 200; colon and rectum, 178; skin and soft part tumors, 160; bone (primary), 120; secondary cancers from unknown primaries, 100; esophagus, 45; non-malignant, 30; and brain, 15.

At the present time the hospital beds are about 70% surgical and 30% medical. It is not clear as to how many specific radiation beds are available at Memorial. As a cancer center they encounter many difficult diagnostic and therapeutic problems and many cases of recurrent disease. When the patient has hemotogenous metastasis which is not possibly curable by x-ray therapy alone, they consider that palliative irridation in the home community probably is to be preferred.

Potentially Curable Cancer

Potentially curable cancer includes cancer with lymphnode spread but no hemotogenous spread; Hodgkin's disease without visceral or marrow involvement; some soft tissue sarcomas, particularly liposarcoma; and solid tumors of children. One case of osteogenic sarcoma cured locally and subsequently had pulmonary metastasis successfully treated but died of cerebral metastasis. The patient's loyalty to the community hospital is not finally decisive as to where he should be treated, since the patient seldom gets a second chance. The inexperienced radiologist who stops treatment for fear of complications may lose more patients than are damaged by over-treatment. A weekly visit by a radio-therapist to a community hospital is probably not enough. Staff interchange, perhaps for two days each week, would be better.

In the discussion on treatment planning certain inherent difficulties were mentioned. The side effects on healthy tissue such as nausea, depression of blood count, necrosis, can largely be eliminated by the use of high energy radiations, the absorption of which is not dependent on the atomic number of the tissues. Effective dose is important. If we do not allow for difference in homogeneity of tissues, we will get variations of doses. For example, a calculated dose of 6000 rads at a given depth might actually be only 4700 rads when given through the bones of the pelvis or 7000 rads when given to the esophagus through lung containing air.

The use of high energy (25 MEV) batatron electron beams for breast cancer avoids heavy doses to the underlying tissues as described by Dr. Chu. The use of automation has made all therapy much more precise.

Rank as Cause of Death

Dr. Lois Murphy in her talk about children pointed out that cancer including leukemia is second only to accidents as a cause of death in children. Of all cancer deaths, 45% are due to leukemia. About 4500 deaths occur per year (2% of all cancer deaths). There are about 300 cases of neuroblastoma in this country per year. Any solid tumor in a child should be considered cancer until diagnostic steps are taken. Among the five-year survivors there are 16 lymphomas, 26 soft part sarcomas, 40 bone tumors, 33 Wilms tumor and/or neuroblastoma and 22 with various cancers including teratomas. Some of these patients had treatment prior to coming to Memorial Hospital.

Dr. Windeyer pointed out that 25% of cancers arising in skin, mouth, uterus and breast are curable, and radio-therapy is equivalent to other methods of treatment. Some very radio-sensitive tumors are very widely metastatic tumors such as nasopharyngeal cancer, lymphosarcoma, medulloblastoma. Moderately radio-sensitive tumors include those of the skin, breast, thyroid, mouth, tongue, larynx and uterus; some are better treated by surgery, others by radiation therapy. Among the more resistant tumors are fibrosarcoma, bowel cancer, parotid tumors, glycoma and melanoma. With the more accurate dosage available today there is less damage to normal tissue. There is probably no more progress possible by going to higher voltage except by the use of neutron beams. Advances may occur in oxygen or chemical sensitization of tumors, different fractionation of dosage and chemotherapy. Among the very radio-sensitive tumors, seminoma often is curable, Hodgkin's disease does well but he doubts that cases can be called cured.

Some problems in choosing between radiotherapy and surgery were discussed. Does one method have a cosmetic advantage over the other? Is irradiation scar going to be troublesome? With the tongue, the initial treatment of cancer in the anterior two-thirds of the tongue should be radiation except for very bulky tumors, involvement of the mandible, recurrent tumors and with syphilitic glossitis. For the larynx megavoltage radiation for intrinsic lesions with surgery for radiation failures. Cervical nodes metastatic from lip or tongue are usually treated surgically but some can be cured by irradiation.When bone and cartilage are invaded, usually surgery is better but some patients in whom very hard radiation was used have healed without necrosis. Bladder cancer can be treated by implantation for small lesions. Megavoltage controlled 20% of extensive lesions and avoid total cystectomy. The present policy with osteogenic fibro and chondro sarcomas is heavy megavoltage irradiation and amputation delayed up to six months later. Half of them had no active tumor at amputation. (I suppose this does not include those who died from pulmonary metastasis prior to surgery.) The exact tumor dose cannot be stated for any tumor because of variation of size, viability, blood supply and oxygen supply. Dose is really determined by the tolerance of normal tissues.

MEETING OF AMERICAN RADIUM SOCIETY

Miami Beach, April, 1968

JOHN F. HYNES, M.D.

D. G. C. Clark and others of Memorial Cancer Center, New York, presented a paper on the *Treatment of Ovarian Cancer.* A series of 527 patients were studied. Addition of x-ray therapy to surgical treatment was of definite value except for patients with pseudomucinous cancer. The results from the use of intraperitoneal p32 in a series of 94 cases were also presented. The advantages of this isotope and technique of its administration include its safety with almost complete lack of complication attending its use.

J. M. Vaeth of Mt. Zion Hospital, San Francisco, California, presented a report on *The Role of Pre-operative Radiation Therapy in the Management of Carcinoma the Ovary.* He advocates that if the disease is found to be beyond the confines of the ovaries at the time of exploration, the operation be discontinued, biopsies obtained, the patient closed and referred for radical pre-operative radiation therapy before a second operation is attempted. Treatment technique in use is wide lower abdominal and pelvic fields with the 25 MeV Betatron.

Badib and others of Roswell Park Memorial Institute, Buffalo, New York, reported on approximately 300 cases of recurrent endometrial cancer. Cases of lower vaginal recurrence treated by full pelvic irradiation using external irradiation with or without radium had a longer survival than those treated by local vaginal irradiation using radium. In upper vaginal recurrences, there was no great difference between those treated with local radium and those with combined external radiation as well. With vaginal recurrence, they reported 34% five-year survival. Corporal and cervical stump recurrences had the best results when treated by radium followed by hysterectomy or cervicectomy. For other pelvic recurrences or distant metastasis external irradiation was used but the results were the poorest among the series.

I gave a report on *Curative Treatment of Hodgkin's Disease*. Only a minority of my patients had stage I or stage II of the disease; the majority were stage III. Patients were treated by segmental radiation therapy (treatment of all the major complexes; cervical, axillary, mediastinal, retroperitoneal, aortic and mesenteric, iliac, inguinal and femoral nodes). Half of the patients lived five years after the onset. Survival from onset is calculated by the life table method. Ten-year survival in this series is 33% (all stages). No patient without recurrence for ten years has yet developed a late recurrence up to 32 years. Several patients who died in less than ten years after treatment from causes other than Hodgkin's Disease had no foci of Hodgkin's at autopsy.

L. R. Prosnitz and others of Yale, New Haven, Connecticut, analyzed 300 patients with malignant lymphoma, 134 with Hodgkin's disease and 147 with lymphosarcoma and correlated the location of recurrence or extension with stage of disease, radiation dose, extent of field treated, histology of the disease, and survival of the patient. Fifty patients with "localized" Hodgkin's disease (Stage I or II) were treated through large fields so called (Mantle) treatment to include neck, axilla and mediastinum protecting the lungs with doses up to 3500 or 4000 rads 3½ to 4 weeks (megavoltage) yielded 54% four-year survival rate. Of the cases of lymphosarcoma, only 17% were in Stage I or II. Of this number, 45% have survived and are free of disease from one to eight years.

Panel discussion on the treatment of solid malignant tumors in children was moderated by Lemuel Bowden of Memorial Cancer Center of New York. Surgery was presented by Lester W. Martin of the Children's Hospital, Cincinnati, Ohio. Radiation therapy was presented by Giulio J. D'Angio of University of Minnesota Hospitals, Minneapolis, Minnesota, and Chemotherapy by M. Lois Murphy of Memorial, New York.

R. Jesse of M. D. Anderson Hospital and Tumor Institute, Houston, Texas, described combined intra-arterial infusion and radiotherapy for the treatment of advanced cancer of the head and neck. Of 34 patients, who completed a protocol, nine were given Methotrexate in doses of 35 mg daily to one side or 50 mg daily in bilateral infusion. Twenty-five patients received 5 FU in doses of four to eight mg per kilogram. The protocol called for infusions daily from days one to five and then from seven to twelve. X-ray therapy was given from days two to six and eight to thirteen. The location of catheters were checked by 20% fluorescein before treatment. They achieved local control in 40% of cancers arising from the mouth or antrum but no control on any from the oropharynx.

P. W. Scanlon and others of the Mayo Clinic, Rochester, Minnesota, discussed the treatment of cancer of the base of the tongue. In 116 patients treated from 1952 to 1962, the disease was four times as common in men. The five-year survival rate was 27% for men and 42% for women. Seventy-eight percent had squamous cell carcinoma with a five-year survival rate of 26%; 11% had lymphomas with a five-year survival of 39%. Metastasis were present in 70% on admission with a 24% five-year survival. There has been no apparent improvement in the treatment with a change from either super voltage or cobalt methods. Seven percent died from complications including myelitis, necrosis and hemorrhage.

M. W. Eisenstein of Michael Reese Hospital, Chicago, Illinois, reported on chemosurgery of facial skin cancers. Cosmetic results were satisfactory but probably no better than those from either radiation therapy or surgery.

W. Maxfield and W. Coleman of Ochsner Clinic, New Orleans, Louisiana, reported on cutaneous reaction to radiation therapy. Four cases of erythema multiformo occurred following CO^{60} teletherapy.

U. Henschke, B. Hilaris, and J. Pool of Memorial Cancer Center, New York City, reported on interstitial implants of radioactive seeds during thoracotomy for lung cancer. They found it most satisfactory. Implant was I^{125} because it is possible to limit the volume under treatment. What otherwise would have been a useless exploratory operation could be converted into a form of treatment. Some 4.6% of unresectable patients have survived more than five years.

C. Rinker and A. Templeton of University of Missouri School of Medicine, Columbia, Missouri, reported on combined azygography and superior vena cavography in 93 patients suspected of lung cancer. When there is persistent block of the azygos system, the lesions were unresectable. However, in several patients whose azygos block disappeared following 2000 rads tumor dose in three days to the mediastinum and primary tumor, the lesions proved to be resectable.

J. Castro and R. Linberg of M. D. Anderson Hospital and Tumor Institute, Houston, Texas, reported on computer dosimetry in interstitial gamma ray implants.

There was an interesting symposium on Prostatic Cancer moderated by Del Regato of the Penrose Cancer Hospital, Colorado Springs. Four stages are described. 1. The accidental finding of prostate cancer in a gland resected because of hypertrophy. 2. Prostatic cancer confined to the prostate. 3. Cancer infiltrating adjacent structures such as the seminal vesicles and, 4. Distant metastasis. The general conclusion is that 90% of patients with prostatic cancer are best left untreated, save for TUR or perhaps by orchiectomy alone. Ten percent of patients with advanced cancer (stage IV) benefit from estrogens. When estrogens are used as routine treatment, a study throughout the V. A. Hospitals indicated decreased mortality from cancer but excessive cardiovascular mortality in all groups. These patients were receiving 5 mg of stilbestrol daily. Another series given a smaller dose of estrogens is now under study.

CPC

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The clinical diagnosis of myocarditis is often quite difficult. The heart is usually enlarged, tachycardia is generally present and there are usually varible manifestations of myocardial involvement, such as cardiac irregularities and a variety of electrocardiographic changes. Most patients evidently make a rapid recovery, but some die suddenly and others go on to subacute illness and chronic heart disease.

SAD FACTS MAKE SORRY FICTION

Continued from Page 98

Summary

In the years 1963-1967, inclusive, approximately one third of all deaths where cancer had been entered on the death certificate were cases which had never been reported to the Registry. Possible deterrents to inadequate reporting are discussed. Contrasts are noted between the potential uses and purposes of hospital versus central or "super" registries. The conclusion is reached that the time has come to re-examine the desirability and practicability of maintaining a central Delaware Tumor Registry.

GENTAMICIN — A New Antibiotic

Continued from Page 89

Addendum

At the time of the preparation of this manuscript, we had not noted any clinical or audiometric evidence of deafness resulting from gentamicin therapy. A sixty-five-year-old male patient was treated with gentamicin for gram-negative rod sepsis with shock. The severity of his illness precluded audiometric testing prior to or during gentamicin therapy. About ten days following cessation of gentamicin therapy, clinical deafness was apparent. Audiometric evaluation confirmed the impression of severe hearing loss. Clinicians who might be using gentamicin should be alerted to the possibility of producing this serious side-effect with this valuable antibiotic.

REFERENCE

1. Martin, C. M.; Cuomo, A. J.; and Zage, J. R.: Mitral presumptive therapy for serious acute gram-negative rod infections: Preliminary report of a controlled clinical trial. Trans. N. Y. Acad. Sci. 29:559-605, Mar. '67.

Editorials

THE TRUSLOW REPORT

The importance of this report may be measured not by the number of its visionary ideas, but by the fact that it will serve as a reference and data source for many of our future medical health care programs. Some of the concepts in this report will probably be adopted with or without modifications. Others, hopefully, will act as catalysts for the development of new techniques and approaches to medical problems not yet foreseen that may evolve in the future.

The Medical School, University of Delaware and the Wilmington Medical Center affiliation must not be considered just for students. This is important, but is of a much lesser magnitude than the more global concept of this plan.

The main reason for the three way affiliation is to give the State of Delaware the improved health care and increased resources, facilities and medical personnel that can only be possible by the presence of a Delaware Medical School. In essence, this tripartite affiliation will give to Delaware all the major advantages of a school of medicine at a fraction of the cost of a Delaware-based, four-year medical school. The report points out that this system can be expected to increase the number of highly qualified physicians in this State and also provide a new source for the training of nurses, technicians and other paramedical personnel to meet the challenge of the critical manpower gap that is developing in the field of medicine.

Fundamental to increasing the number of physicians in the State of Delaware, is the ability such a school has in allowing our students to compete at a state level for positions in the Philadelphia medical school rather than competing at a national level. It seems quite clear that with "beefed-up" undergraduate paramedical departments and lessening of competition, a large number of Delaware students will be attracted into medicine.

There is a considerable body of statistics to indicate that medicine is rapidly reaching a manpower shortage that cannot be met by simply increasing the number of physicians. The increased population and medical demands of that population are predicted to be far too great to be met by our present system and supply of physicians. Instead a new system for the delivery of health care must be devised. This will require careful utilization of specially-trained paramedial personnel for the screening and treatment of minor illnesses. Possibly multiphasic screening and even the computer will find their places in everyday medicine. Such systems cannot be developed and properly tailored for the State of Delaware without the coordinated effort of a medical school, a university and a medical center all pulling together towards a common goal.

The Truslow Report contains many of the facts needed to make the decisions as to what programs are necessary and how they can be implemented. At the same time, the information in this report has great flexibility and, therefore, represents one of the most significant reports in Delaware's medical history.

GARBAGE IN, GARBAGE OUT

In this issue Dr. Barbara Rose laments the effort involved in the collection of incomplete epidemiologic cancer data. This plaint is heard repeatedly from other members of our public-health team. In our December issue, Dr. Winder Porter emphasized the importance of physicians reporting their cases of VD. Recently Dr. Edward Gliwa pointed out that assessment of the efficacy of the measles vaccine or other immunization programs can only be done if the physicians who are treating measles patients report their cases to the State Board of Health.

There are occasionally years in which more deaths are recorded in Delaware from TB than active cases, indicating that even in respect to serious diseases like TB we physicians are habitual scofflaws.

An article in a current New England Journal of Medicine deals with a recently established system at the Massachusetts General Hospital designed to detect adverse drug reactions in hospitalized patients. A question regarding the occurrence, during the hospitalization of every patient, of an adverse reaction to any of his medications was made a part of the discharge form. The study physicians report that a check on the completeness of reporting thus achieved (which I might have guessed would have been nearly perfect), revealed reportage of about one-third of all drug reactions, and about two-thirds of the severe cases, a rate considered higher than any degree of spontaneous reporting ever before attained.

There is an expression common to data-processors with respect to the quality of data achieved from the computer: *GI GO;* translated, garbage in, garbage out. The handling of vital statistics, whether in regard to cancer, measles, tuberculosis, or venereal disease, represents an investment in time and in money. Bad data results in records often accepted as valuable and valid by the very people who know themselves to have been delinquent in the collection of the same data. Garbage in, garbage out.

Bad public health statistics, as with most statistics, may well be worse than none.

B.Z.P.

EDITORIAL COMMENTS

Dr. Barbara Rose has defined the deficiencies of the Delaware State Tumor Registry — a problem most of those who were interested in the problem were quite aware of. There are other reasons for the deficiencies cited, including the lack of financial support or help for the hospital registries from public health authorities. The problem of confidentiality has not appeared to be a significant obstacle to the collection of data, but attempts to get information in reverse from the State Board of Health has been a problem for some of us. Late reporting accounts for much of the discrepancy between the registry and the death certificate. Probably 20% of the cases reported for the Carpenter Memorial Clinic are already dead when reported. It might be helpful to ask doctors who sign death certificates for cancer, to fill in a tumor abstract form — which could be sent by the State Registry when the case is not in their file. It would also be helpful if state institutes, such as Bissell, reported more regularly than we think they do.

While a properly run State Registry which gives financial support to the hospital registries and record rooms reporting to it would be possible without excessive cost, one might still ask is such an effort worthwhile? It is agreed that at the hospital level the chief advantage of a Cancer Registry is a management one. likely to learn something not already being From an epidemiological point of view are we done in another area, for example, Connecticut, where experience has been good? It seems likely that their epidemiological data could be applied to Delaware, although in some respects Delaware might be an easier and better place from which to collect such information. Will the stimulation of a Registry result indirectly or directly in better care for the cancer patient? We would like to think so, but have to admit that the point is not proven. Is this the best use of our resources to fight cancer? Both the American Cancer Society and the American College of Surgeons have had some second thoughts about the value of the Registry. We have no final answer but recognize the potential values of a registry in local management of the cancer patient, in education of physicians, in the need for standard terminology and in gathering epidemiological facts to better understand the disease and serve as a method of identifying various groups of cancer patients for detailed study. (Most agree that the Registry does not have sufficient data for research in specific tumor problems.) Therefore, we hope Dr. Rose's review of the problem will serve as a stimulus to improve our central registry in the State and insure that it will be used. The registry at the Wilmington Medical Center is being put on the Hospital computer. When this is finally accomplished, there may be an advantage in centralizing all the tumor registry data in Delaware on the same computer, but this will cost money and need support.

R. W. Frelick, M.D.

Delaware Academy of General Practice

FAMILY MEDICINE APPROVED AS PRIMARY MEDICAL SPECIALTY

A new specialty of family practice was officially recognized when the Advisory Board for Medical Specialties and the Council on Medical Education of the American Medical Association approved a certifying board in family practice.

The American Board of Family Practice is empowered by the decision to conduct examinations and to grant certification to family physicians who meet its qualifications and pass the examination. This certification will be recognized by the American Medical Association and other bodies in medicine.

It is anticipated that the new ABFP will meet in the near future to organize and to initiate plans for conducting the certification examination. The board is an independent organization. AAGP President Maynard Shapiro has said that it is very important for all Academy members to understand that the AAGP does not control this new board. It is just as important for all AAGP members to understand that they do not have to take the board examination to remain members of the Academy. The Academy will continue to represent all of general or family practice.

Currently are eighteen residency training programs which have received preliminary approval by the Council on Medical Education. The new certifying board will require its so-called "residency-eligible" candidates to complete three years of graduate training to be eligible to take the certification examination. It is anticipated that a residency review committee similar to that for other specialty disciplines will be appointed.

Family doctors now in practice — who constitute the "practice-eligible" category of potential diplomate candidates — will be eligible to take the examination upon showing evidence of having completed a minimum of 300 hours of accredited post-graduate study in medicine; this means, in most cases, having been a member of the American Academy of General Practice for a period of six years.

The by-laws of the new board call for a termination of the "practice-eligible" category in ten years. After that period, only graduates of approved family practice residencies will be eligible for certification. There is no provision for "grandfathers" — certification can be achieved only by passing the examination.

The two-day written examination was prepared by the National Board of Medical Examiners, Philadelphia. Following its organization, the ABFP will distribute applications for the examination to all potential candidates.

THE CONSTITUTION DOESN'T SAY . . .

"There are some studies to show that the changes in air pressure in travel can cause changes in the contractibility of the intestines and, therefore, some looseness of the bowels, whether one arrives in New York, Chicago, or Canada. . .

"There is nothing in the Constitution that says one bowel movement a day is what every American should have. Three may be perfectly fine for everybody in the tropics, and, as long as one is not sick, as long as one doesn't see blood or something frightening, one can just go on and enjoy oneself. . ."

(From an address to the N. Y. Times Writers' Association by Dr. Kevin Cahill, Director of the Tropical Disease Center, St. Clare's Hospital, N. Y. C. Reprinted in the N. Y. Times, Feb. 2, '69.)

President's Page

A SCHOOL OF MEDICINE FOR DELAWARE — WHEN?

The above question is being heard repeatedly by your President and members of the Council of the Medical Society. There is no question about an urgent need for a Medical School in our state. This was recognized about ten years ago when the original Medical School Committee was appointed. There has been an increasing lack of physicians in Kent and Sussex Counties during the past several years. In many communities the situation is critical. Several towns are without medical care and are dependent upon the use of the resident physicians and the "on-call" physicians in these two counties.

There is no doubt that making medical education available in our state will result in more physicians remaining here to practice. The addition of osteopathic physicians has not appreciably eased the problem.

It is my fervent hope that it may be possible to enroll our first class during my year of office. Cooperation of many groups is essential for us to do this. Primarily all the physicians must become involved and assist our Medical School Committee and the Medical School Foundation. The need is well-recognized by the University of Delaware, its Trustees and President. The State legislature and Governor are well-acquainted with our present need.

The Truslow Report in this issue describes how this may be possible. I hope you will read this and support it.

The time to start a School of Medicine in Delaware is now.

Charles M. Moyer

Letters to the Editor

To the Editor:

One frequently hears it preached that mydriatics should not be used in the examination of elderly persons for fear of precipitating an attack of acute glaucoma. It is my feeling that the benefits to be gained by a mydriatic examination of the fundus by and large far outweigh the remote possibility of inducing an attack of acute glaucoma in an individual unsuspected to have glaucoma or a predisposition to it.

First of all, the chances of this happening are relatively rare. Angle closure glaucoma represents less than 5% of all glaucomas. Personally, if I had this type of glaucoma or a predisposition to it, I would not be disturbed if the use of a mydriatic resulted in an attack of glaucoma; in fact I would be grateful.

Early therapy which in an narrow angle glaucoma consists of a peripheral iridectomy is usually a permanent cure and one that frees the patient from worry and/or the use of constant medication.

It is perhaps too bad that fear of precipitating an attack of acute glaucoma during examination has been instilled into non-ophthalmologists by reported dire warnings. It seems to me that the benefits to be gained far outweigh the remote possibility that in one physician's lifetime of examinations, more than two or three cases of acute glaucoma might possibly be indicated. The important thing is for the doctor to recognize the symptoms of such an attack after mydriatic examination or otherwise. Frequently acute glaucoma is missed especially when it occurs after emotional or physical trauma. This is not rare and I have seen several patients in the hospital for a broken leg or similar trauma who developed nausea, vomiting and painful eye with no one connecting the eye problem with the systemic symptoms and considerable delay therefore in ophthalmologic examination and therapy for their acute glaucomas.

As long as the physician is knowledgeable regarding the symptoms of acute glaucoma, there is no reason for him to refrain from pupillary dilitation if he feels it is indicated for completeness of fundoscopic examination. To do so would be overcautious and of no benefit to the patient.

Davis G. Durham, M.D.

To the Editor:

The Delaware Association of Medical Assistants, a component society of the American Association of Medical Assistants, has been in existence for five years. I am amazed at the lack of enthusiasm among the physicians of Delaware for this organization.

The aims of this organization as found in its constitution are: to promote more efficient service to the profession and the public; to cooperate with the medical profession in improving public relations; to render educational services to its members; to be non-profit — it is not nor shall it ever become a trade union or collective bargaining agency. All activities of the Association are funded by its members and occupy only "after-working" hours.

What more selfless goals can be required of your assistant? Why not encourage her to join this organization? I believe that the physician who does not urge his office assistant to membership in the Delaware Association of Medical Assistants is "missing a good deal." The nominal yearly dues of $15.00 might even be contributed by the physician-employer, as a tax-deductible item in honor of his office assistant who is willing to donate her time for the good of her employer and his patients.

Carl I. Glassman, M.D.

In Brief

In the News

Davis G. Durham, M.D., received the fifth annual Brandywine Award of Brandywine College in recognition of his twenty years of voluntary medical work which began with helping to curb blindness among the Eskimos in Alaska. He has done mission work in Nepal and Haiti, served with Project Hope in Peru and Columbia, and for the Department of the Interior among the natives of Samoa. While working in Africa, Dr. Durham devised a diamond knife for removal of cataracts.

John W. Alden, Jr., M.D., and Carlo A. Cuccia, M.D., were among the 119 radiologists to be made fellows of the American College of Radiology at its annual meeting on February 21, 1969. The degree of fellow is conferred upon certified radiologists who have given distinguished service to their specialty over the years.

Norman L. Cannon, M.D., executive director of the Wilmington Medical Center received the B'nai B'rith annual Community Service Award at a program given March 4, 1969.

Speakers on "Ask the Doctor"

Speakers for April, 1969, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: Apr. 1, John W. Alden, Jr., M.D., *Gastrointestional X-rays;* Apr. 8, Robert L. Dewees, M.D., *Sore Throats, Strep Throats and More*; Apr. 15, Carl I. Glassman, M.D., *Hernia*; Apr. 22, Alvin Weiner, M.D., *Glaucoma*; Apr. 29, Dewey Nelson, M.D., *Headaches.*

Disabled Adult Child

The term "disabled adult child" applies to a person disabled before age 18 who has been unable to work gainfully for a period of twelve consecutive months or more. Benefits can begin at 18 on the earnings record of a parent who dies or becomes entitled to Social Security retirement or disability benefits. The prospective beneficiary may already have qualified for benefits as a minor child. Sufficient medical evidence can be provided through the report from the family doctor. Should the "child" be over age 40, school records can often furnish necessary information if those who cared for the applicant as a minor are no longer living.

In Delaware there are two agencies who examine claims and make disability determinations: The Disability Determinations Service (Delaware State Board for Vocational Education), and the Delaware Commission for the Blind. Claimants are referred to the state agency where provision is made for artificial limbs, psychiatric services, and counselling.

Manuscript Award for 1970

The Obstetrics and Gynecology Specialty Group of the International College of Surgeons announces an award to be given the author of a manuscript selected by its Prize Committee. The award will consist of an invitation to present the winning paper at a meeting in Paris, France, including a round-trip ticket, hotel expenses and $10.00 per diem. Contestants must be interns, residents or graduate students in the field of obstetrics and/or gynecology. Papers must be submitted on or before January 15, 1970. For further information, write: Abraham F. Lask, M.D., Chairman, Obstetrics and Gynecology Group, United States Section, International College of Surgeons, 1516 Lake Shore Drive, Chicago, Ill. 60610.

The Month in Washington

Drug Advertising Tax

The AMA told Congress that the IRS acted arbitrarily and completely ignored the facts in imposing a tax on revenue from drug advertising in journals of tax-exempt medical associations. The AMA general counsel, B. D. Hirsh, testified before the House Ways and Means Committee, that the relation between the tax-exempt purposes of a medical association and the drug advertising in its journal is self-evident. "No other advertising provides as much complete and objective information," he said. "We urge that this mistake be rectified expeditiously and in the most practical way possible."

Alcoholism Problem

An extensive national program to combat alcoholism has been urged. The committee recommended: elimination by hospitals of discriminatory policies denying admission to alcoholic patients; health insurance coverage for alcoholics; increased support for research; prevention and control of alcoholism as a vital part of national highway safety programs. '"The magnitude of the problem is enormous," said Dr. Straus, Committee Chairman. "Our country has more than five million alcoholics. Their suffering alone is intolerable, but the need for increased action is made even more imperative by the fact that affected families may include as many as 20 million Americans."

Alcoholism Research Program

A five-year research program on alcoholism to be held at the State University of New York will include a study of 60 newly admitted patients between 25 and 55 to determine the effects of experimentally-induced intoxication and withdrawal on the subjects' sleep patterns, behavior and biochemistry. Among the drugs to be tested are haloperidol, dexoxadrol, disulfiram (antabuse), paraldehyde and chlordiazepoxide alone and in combination with a tranquilizer and an antidepressant.

Rubella Vaccine

The federal government is planning to launch a five-year, nationwide program of inoculation against rubella, or German measles, as soon as a vaccine is licensed and available in sufficient quantities. It is expected a vaccine will be available by next fall.

CLINICAL NOTICES AND MEETINGS

Cardiac Symposium

The Twelfth Annual Joint Cardiac Symposium of the Heart Association of Northern Virginia and the Washington Heart Association will be held in the Persian Room of the Marriott Twin Bridges Motor Hotel, US #1, Washington, D. C., April 9, 1969. Write: Mrs. Anna C. Van Sickler, Exec, Dir.. Heart Association of Northern Virginia, 609 N. Edgewood St., Arlington, Va. 22201.

Laryngology and Bronchoesophagology

The postgraduate course in Laryngology and Bronchoesophagology sponsored by the Department of Otolaryngology of the Illinois Eye and Ear Infirmary and the the College of Medicine of the University of Illinois will be held April 14-25, 1969. Interested registrants may write: Department of Otolaryngology, College of Medicine, Univ. of Illinois at the Medical Center, P.O. Box #6998, Chicago, Ill. 60680.

American College of Obstetricians and Gynecologists

The 17th Annual Clinical Meeting of the American College of Obstetricians and Gynecologists will be held at the Americana Hotel in Bal Harbour, Florida, April 28th to May 1st. Twelve post graduate courses will be conducted immediately prior to the meeting on April 26-27. Fees: meeting, $50; postgraduate courses, $45. For complete information, contact: Meeting Services Department of American College of Obstetricians and Gynecologists, 79 W. Monroe, Chicago, Ill. 60603.

CLINICAL NOTICES AND MEETINGS

Neuropsychiatric Institute

The Twelfth Neuropsychiatric Institute of the Coatesville Veterans Administration Hospital entitled *Patterns of Self-Destruction* will be held April 18,, 1969.

Colon and Rectal Surgery

The Pennsylvania Society of Colon and Rectal Surgery will present a symposium on *Sigmoidoscopic Technique in Diagnosis and Treatment,* May 7, 1969. For information, write, Valentine R. Manning, Jr., Treasurer, 33336 Aldine St., Phila., Pa. 19136.

Medical and Chirurgical Sessions

The 171st Annual Meeting of the State Medical Society of Maryland will be held April 9-11, 1969. There is no registration fee and credits will be given by the Academy of General Practice. For detailed program, write: Joseph D. B. King, M.D., Chairman, Committee on Program and Arrangements, Medical and Chirurgical Faculty, 1211 Cathedral St., Baltimore, Md. 21201.

Jefferson M.C. Symposium

Clinical uses of new knowledge about human reproductive problems will be the subject of a two-day symposium at Jefferson Medical College, April 11-12, 1969. Emphasis will be placed on the evaluation of the infertile couple, new diagnostic aids and techniques for successful management. Advance registration for the symposium (fee $40) may be made through John H. Killough, M.D., Associate Dean for Continuing Education, Jefferson Medical College, Phila., Pa. 19107.

ACP Annual Session

Th American College of Physicians announces its Fiftieth Annual Session to be held April 20-25, 1969 at the Conrad Hilton Hotel, Chicago, Ill. For information, write: Edward C. Rosenow, Jr., M.D., Exec. Dir., ACP, 4200 Pine Street, Philadelphia, Pa.

Seaford Seminars

The Seaford Seminars of the Medical Society of Delaware will be held at the Nanticoke Memorial Hospital from noon to 1 p.m. on: Apr. 8, 1969, *Odds and Ends in Hematology*, John J. Egan, M.D.; Apr. 15, 1969, *Radiological Examination of the Abdomen and Extremities*, Emanuel Renzi, M.D.

Internist Annual Meeting

The American Society of Internal Medicine will hold its annual meeting at the Palmer House, Chicago, April 18-20, 1969. For details, write: ASIM, 525 the Hearst Bldg., 3rd at Market, San Francisco, Calif. 94103.

Industrial Health Conference

The Industrial Medical Association and the American Association of Industrial Nurses will combine their annual meetings at a conference at the Shamrock Hilton in Houston, Texas, April 21-24, 1969.

Infectious Disease Symposium

The Sixth Annual Infectious Disease Symposium will be held April 30 - May 2, 1969, at the Academy of Medicine, Lovering Ave. at Union St., Wilmington.

Health Conference

The New York Academy of Medicine's Annual Health Conference entitled "Creative Federalism," "Partnership in Health" will be held April 24-25, 1969, at 2 E. 103rd St., New York City. For registration information, write: N. Y. Academy of Medicine, 2 E. 103rd St., New York, N. Y. 10029.

Clinical Seminar

The International College of Surgeons will sponsor the first *International Symposium on Obstetrics and Gynecology* to be held April 20-26, 1969, in Chicago. There is no registration fee. Advance registrations may be had by writing: The International College of Surgeons Hdgrs., 1516 N. Lake Shore Dr., Chicago 60610.

Anxiety Symposium

A Symposium on *Anxiety and Depression: Modern Interpretations* sponsored by the Mound Park Hospital Foundation and the University of Florida College of Medicine will be held May 1-3, 1969 at the Tides Hotel and Bath Club, Redington Beach, Florida. Fee: $50.00 including lunches and Club Privileges. AAGP approval for 18 credit hours. For information, write: Postgraduate Medical Education, Mound Park Hospital Foundation, Inc. St. Petersburg, Florida 33701.

Breast Cancer

The National Conference on Breast Cancer sponsored by the American Cancer Society will be held at the Shoreham Hotel in Washington, D.C., May 8-10, 1969. A multidisciplinary review of the breast cancer problem in the United States will be presented, including epidemiology, etiology, detection, diagnosis, management and control measures. For further information, write: Ronald N. Grant, M.D., American Cancer Society, 219 E. 42nd St., New York City, 10017.

The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

Tetracyclines

Gastrointestinal Symptoms

The tetracycline are more likely than other orally administered antibiotics to cause diarrhea and other gastrointestinal side effects. There are two possible reasons for this. First, the tetracyclines may have a direct action on the gastrointestinal mucosa. The hydrochlorides of tetracyclines form strongly acid solutions, and some degree of local intolerance may be reasonably assumed. Secondly, the tetracyclines are not completely absorbed and some portion of each dose remains in the intestinal tract to produce changes in the flora. It was originally thought that the intestinal symptoms were due to deficiency of vitamins of the B complex brought about by alterations in the gut flora. Later, however, it was suggested that such symptoms were related to overgrowth of fungi, and, in particular, of C. albicans. Since nystatin is known to inhibit the growth of this organism it seemed logical to add it to preparations of tetracycline. Use of the combination is now widely advocated. In a study organized by the British Tuberculosis Association and conducted at eight centers on a double-blind basis, 111 patients with respiratory infections were given tetracycline plus nystatin (Mystecline V-Squibb) or tetracycline alone. After ten days treatment, 50% of patients receiving Mysteclin V had gastrointestinal symptoms compared with 34% of those receiving only tetracycline. The incidence of C. albicans in the stool at ten days in the Mysteclin V group (9.1 per cent) was significantly lower than that in the tetracycline group (37.1 per cent) but this was not reflected in any reduction in the frequency of gastrointestinal symptoms. It is concluded that the addition of nystatin to tetracycline cannot be justified as a measure for preventing such symptoms.

Clinical Trials Subcommittee, British Tuberculosis Association, *British M. J.* 4:411, Nov. 16, 1968.

Penicillin

Hemolytic Anemia

Two cases of penicillin-induced hemolytic anemia are reported. Typically, the anemia occurs in patients who have received large doses of the drug in the past and are given penicillin again in doses of 10 million units or more daily. It is characterized by a falling hemoglobin level and a rising reticulocyte count, and the patient's red cells are strongly agglutinated by anti-IgG sera. On withdrawal of the penicillin the hemoglobin level rises quickly, and the direct antiglobulin test becomes negative in two to three months. Since large doses of penicillin are given to patients with diseases commonly associated with anemia (subacute bacterial endocarditis, septicemia, etc.), a hemolytic attack resulting from the antibiotic may pass unrecognized unless this possible cause is born in mind.

White, J. M., et al. (Royal Postgrad. Med School, London, Eng.) *British M. J.* 3:26, July 6, 1968.

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THE REACTIONS OF PHYSICIANS TO MERGING OF WILMINGTON HOSPITALS: AN INITIAL REPORT

• The answers to 302 of 475 questionnaires regarding merger of the three community hospitals in Wilmington are evaluated. Opinions of physicians provide a picture of the impact of merger on professional concerns.

ALLAN M. SCHWARTZBAUM, Ph.D.
ROBERT A. ROTHMAN, Ph.D.
JOHN H. MCGRATH, III, Ph.D.

This paper is the initial report of ongoing studies of the New Castle County medical community and the Wilmington Medical Center. It reviews some of the findings of a questionnaire survey of Wilmington area physicians which focused on reactions to the 1965 merging of the Delaware, Memorial and Wilmington General Hospitals.

The study, conducted by members of the sociology department at the University of Delaware, has been financed by a University of Delaware Faculty Research Grant which supported mailing of a questionnaire to all physicians and dentists on the Wilmington Medical Center mailing list. Of the 475 questionnaires, 302 have been returned.* This response rate of 64 percent compares favorably with the return rate reported in other studies of professional groups. Since this paper is primarily directed toward physicians, the responses of 24 dentists have been excluded.

Characteristics of the Sample

In any mailed questionnaire study it is necessary to verify the representativeness of the sample, that is, to determine if the characteristics of the sample correspond to those of the total population. For example, in a study of a community comprised of 60 percent men and 40 percent women, it would be desirable to have a sample which consists of the same proportion of men and women. An examination of the distribution of the medical specialities of respondents provides a partial test of the representativeness of the present sample. By comparing this distribution with a direct count of the specialities listed in the yellow pages of the local telephone directory, it is possible to make some educated guesses concerning the rate of return of physicians from the various specialities.

As stated, the overall return rate was excellent. Table 1 indicates that some groups

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*Six additional questionnaires have been received since completion of this monograph. Responses on these questionnaires will be included in subsequent data analyses.

Drs. Schwartzbaum, Rothman and McGrath are Assistant Professors of Sociology, Department of Sociology and Anthropology, University of Delaware.

TABLE 1

Medical Specialty of Respondents And Group Rate of Questionnaire Return

Specialty Grouping	Number Mailed	Percent of Total	Rate of Return (%)
General Practice	55	20	59
General Surgery	19	7	66
Internal Medicine	43	15	69
Obstetrics-Gynecology	22	8	61
Pediatrics	27	10	87
Radiology	12	4	86
Other	85	31	57
No Answer	15	5	—
Total	278	100	

were more prone to respond than others, eg, 87 percent of the pediatricians as contrasted with 59 percent of the general practitioners completed and returned the questionnaire. The response rate of all the groups is sufficiently high, however, to indicate confidence in the representativeness of the sample.

It will be noted that Table 1 combines many of the specialities into a single "other" category. This procedure truncates a rather long list of diverse specialities, and protects the anonymity of some specialist groups that are composed of relatively few members, such as toxicologists or hematologists. To paraphrase one respondent who was alert to this problem, "How many South Dakota native, Princeton-graduated, internists are there in Wilmington?"

A more detailed examination of the sample provides some indication of the structure of the local medical community. Table 2 suggests that a large proportion of physicians may be considered "locals," in that they have either attended college or engaged in post medical school training in this area. If Pennsylvania is included we find that roughly one-half of the respondents may be considered "locals."* When these findings are examined in conjunction with the data on age reported in Table 3, we have a picture suggestive of a stable, well-established medical community. The average age of the respondents was 49.2 years. This interpretation gains additional support from a consideration of the length of residence of respondents as indicated in Table 4. Only 28 percent of the physicians sampled have lived in the community less than 10 years. The average period of residence was 17.5 years.

The Merger

The central thrust of this study focuses on on the question of the impact of merger upon the professional lives of practicing physicians, and their attitudes toward merger at the conclusion of three years experience with it. Table 5 compares the distribution of votes based on the respondents' questionnaire responses with the official tabulation of the 1965 results. The distribution of the votes in our sample closely approximates the reported actual vote at the time of merger, which suggests that our sample adequately represents both positive and negative evaluations of merger by physicians within the larger medical community.

In order to probe the impact of merger, respondents were asked to report the extent to

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*Almost all the Pennsylvania respondents were from the Philadelphia area and its environs.

TABLE 2

Localism as Indicated by the Respondent's Place of Birth, Where He Spent His College Years, and Where He Served His Internship and Residency

	Where Born		Where College Years Spent		Place of Internship		Place of Residency	
	No.	%	No.	%	No.	%	No.	%
Delaware	47	17	64	23	102	37	69	25
Pennsylvania	74	27	72	26	51	18	51	18
Other Areas	142	51	127	46	105	38	95	34
No Response	15	5	15	5	20	7	63	23
Totals	278	100	278	100	278	100	278	100

TABLE 3

AGE OF RESPONDENTS

	Number	Percent
Under 40	51	18
40 - 49	97	35
50 - 59	64	23
60 - 69	41	15
70 or over	11	4
No Response	14	5
Totals	278	100

TABLE 4

RESPONDENTS' YEARS OUT OF MEDICAL SCHOOL AND YEARS RESIDING IN THE LOCAL AREA

	Years Out of Medical School		Years Residing in Local Area	
	No.	%	No.	%
Less than 10	22	8	77	28
10 to 24	195	70	117	42
25 or more	46	17	66	24
No Response	15	5	18	6
Totals	278	100	278	100

which merger has influenced their professional activities. As was to be expected, merger has differentially affected the everyday practice of local doctors. Only 38 percent of the sample report that merger has "little or no effect" on their professional activities. Of the remainder, 36 percent indicate a "moderate" effect, and 26 percent reveal that merger has "significantly" influenced their practice.

Turning to the matter of changes in the respondents' perceptions over time we find that a majority of the physicians (57%) still held the same opinion concerning merger when they completed the questionnaire as they did when they actually voted on the merger in 1965. However, three out of ten respondents have changed their position on merger. Table 6 indicates that 10 of the 79 physicians originally opposing merger have come to favor it, while another 7 of the 79 are undecided at this point. Of those 141 physicians originally favoring merger, 17 are now undecided and 39 now indicate opposition to it.

In an attempt to provide a comprehensive picture of the ramifications of merger, we examined a broad range of professional concerns about the impact of merger on selected aspects of health services in the Wilmington area. These data are summarized in Table 7. Conclusions drawn from this table must be interpreted with a degree of caution for it is likely that attitudes toward merger will have influenced perceptions of the consequences of this change. The intricacies of this type of influence are in the process of being analyzed in greater detail and will be discussed in several future publications.

The Pattern

The most obvious pattern which emerges is that on most issues a majority of physicians agree that merger has had little or no effect

TABLE 5

REPORTED VOTE ON QUESTION OF MERGER OF SURVEY SAMPLE (1968) COMPARED WITH OFFICIAL VOTE OF ALL DOCTORS (1965)

	Report of Vote by Sample[a]		Official Vote of All Doctors[b]	
	Number	Percent	Number	Percent
In Favor of Merger	154	70	320	66
Against Merger	65	30	162	34
	219	100	482	100

a. Although 278 physicians responded to the questionnaire, we are reporting here only those who answered this particular question.

b. Data on the 1965 vote provided by Dr. Norman L. Cannon's office via telephone conversation, January 17, 1969.

TABLE 6

Change in Attitudes Toward Merger Between 1965 and 1968

1965 to 1968	Number	Percent
Opposed - Opposed	62	22
Opposed - Undecided	7	3
Opposed - Favorable	10	4
Undecided - Opposed	6	2
Undecided - Undecided	12	4
Undecided - Favorable	4	1
Favorable - Opposed	39	14
Favorable - Undecided	17	6
Favorable - Favorable	85	31
No Response	36	13
Total	278	100

on the health services mentioned. On the positive side, it appears that physicians think the merging of medical facilities has resulted in increased availability of equipment (Item 2) and has enhanced the relative prestige of Wilmington's medical facilities (Item 5). On the other hand, it appears that some doctors believe there has been a decline in the quality of patient care (Item 1) and administration of facilities (Item 9), and that they have suffered some challenges to their professional autonomy (Item 8) as a result of merger.

Our data suggests that merger has not equally affected physicians, and there is disagreement as to the consequences of merger, as well as some shift and reconsideration of original opinions.

The Climate of Opinion

These findings provide an indication of the present overall climate of opinion. They do not, however, illuminate the question of how subgroups vary in their attitudes toward and perceptions of merger, nor do they provide insight into the factors which have influenced the formation of these attitudes and perceptions. The data presented in Table 8 are illustrative of the many possible variables which may differentiate those with differing opinions on the need and effectiveness of merger.

TABLE 7

Opinions on Impact of Merger Upon Wilmington Health Services

	General Improvement	Little or No Change	General Decline
1. Quality of Patient Care	14% (38)	42% (116)	34% (95)
2. Availability of Specialized Equipment	19% (54)	63% (176)	5% (15)
3. Patient's Evaluation of Services	9% (26)	49% (135)	28% (78)
4. Control of Out-Patients	9% (24)	58% (160)	18% (49)
5. Status of Wilmington Facilities	28% (78)	46% (128)	10% (28)
6. Professional Standing of Doctors	9% (25)	74% (206)	4% (11)
7. Status of Individual Doctors	9% (24)	63% (174)	18% (50)
8. Professional Autonomy	4% (12)	58% (160)	27% (75)
9. Administration of Facilities	15% (42)	39% (109)	32% (89)
10. Utilization of Health Personnel	22% (61)	45% (124)	22% (60)

TABLE 8

SELECTED CHARACTERISTICS OF RESPONDENTS VOTING FOR AND AGAINST THE MERGER

Characteristic	Vote on Merger Yes	No
Average Age in Years	48.2 (154)	52.8 (60)
Average Years Practicing in Area	16.7 (147)	21.9 (60)
Physicians Who Interned in Wilmington (%)	67.8 (59)	32.2 (28)
Physicians Whose Residency Was in Wilmington (%)	75.0 (45)	25.0 (15)

Table 8 shows that those who opposed merger are somewhat older, and have spent more years in the area than those respondents who supported the merger proposal. A possible interpretation of this finding is that the older physicians who have resided in the area longer are more likely to have developed a considerable number of formal and informal arrangements in the hospitals, arrangements which are likely to be disturbed by so major an organizational change as merger. It could be equally true that older physicians are most likely to hold the high status positions within the system — positions which might be threatened by merging of departments.

Table 8 also indicates that a considerable proportion of physicians who have either interned or completed their residency in Wilmington are in favor of merger. Perhaps physicians who are trained in a system and required to spend sustained periods of time operating within its boundaries are most aware of inadequacies and strains present in the system and therefore most disposed to its modification. Perhaps younger physicians by virtue of their more recent training are more likely to desire the advantages of the specialized units made practicable by merger.

Summary

This paper has provided a preliminary report of a study of the New Castle County medical community and the Wilmington Medical Center. The results suggest that the local medical community is relatively stable and well-established. Merger was initially, and continues to be, supported by a majority of the members of this community. It is apparent, however, that merger has generated controversy and a shifting of opinions among a significant minority of the sample.

Any interpretations based on the present data must remain speculative until more systematic analyses can be completed. The findings from such future analyses will be made available to the local medical community upon their completion.

ACKNOWLEDGMENT

The authors wish to thank Dr. Norman L. Can[illegible] for his services in obtaining permission to use the Medical Center's mailing list and for his efforts in promoting acceptance of the study.

DO YOU STILL SPEAK ENGLISH?

Our English language, like all other living languages, is actually not fully formed but in a constant state of modification by use. The paragraph below is, we suppose, an example of the newest, new English. Can you understand it? Would you like to read the book?

"At present the entire mammalian world has become the microorganismic. It is the total individual cultures of the world, linguistically and politically, that have become the mammals, according to the old classifications of evolutionary hypothesis. It is the cultural habitat in which we have long been accustomed to think that people were contained that has now become the mammal itself, now contained in a new macrocosm or 'connubium' of a superterrestrial kind. Our technologies, or self-amputations, and the environments or habitats which they create must now become the matrix of that macrocosmic connubial bliss derided by the evolutionist."

From "War and Peace in the Global Village," by Marshall McLuhan and Quentin Fiore, McGraw-Hill Book Co., 1968.

THE BIRTH CONTROL PILL AND ITS OPHTHALMOLOGIC SIDE EFFECTS

• The widespread use of the birth control pill has led to the possibility of many systemic side effects. The author has reviewed the opthalmological side effects previously reported, and studies the problem from a personal series of cases.

JOHN M. LEVINSON, M.D.

Contraception isn't a modern idea or a modern invention. We are told that before the days of written records North African desert tribes drank foam from a camel's mouth to prevent pregnancy. Papyrus prescriptions for contraception dated about 1500 B. C. recommend Egyptian women making a pessary from crocodile dung. One of the most important discoveries of the twentieth century has been the birth control pill. Over the past decade many millions of women throughout the world have eyed this method as the key to sexual freedom. Unfortunately these powerful steroids are not without systemic side effects.

In April, 1965, the Archives of Ophthalmology reported several neuro-ophthalmic complications attributed to oral contraceptives.[1] The following November, Walsh[2] and his associates had collected from their own practice, from the literature, and from editorial solicitation, 69 cases of ocular and neurological diseases occurring in women who were taking "the pill" at the time of illness. They speculated on the role of oral contraceptives in causing these incidents but did not conclude that these drugs were the causative agents. Faust and Tyler[3] reported in January, 1966, that thorough eye studies on 212 patients using oral contraceptives for one to three years failed to show any papilledema and the incidence of eye pathology was similar to that of a control group. As Walsh has stated earlier, they felt that tremendous amounts of data would be needed to resolve the problem of a possible relationship between eye pathology and use of contraceptive steroids. Meyer[4] et al studied 20 patients with primary wide angle glaucoma. When using Enovid for up to 12 weeks, a statistically significant drop in intraocular pressure was demonstrated. Caron[5] described an attack of corneal edema in a woman who had been wearing contact lenses for three years. The attacks were coincident with side effects due to fluid retention induced by estrogen. Sarwar[6] writes that the cornea retains water because of electrolyte imbalance in the rest of the body. The retention is increased if the cornea's mechanism of dehydration and homeostasis is stretched by a contact lens. This electrolyte imbalance could be hormonal as in pregnancy or with use of oral contraceptions. In November, 1966, Kearns[7] concluded that if a cause-and-effect relationship existed between "the pill" and ocular disease, it must be infreuent considering the widespread use of these new steroids.

Goren[8] presented two cases of unilateral retinal edema secondary to oral contraceptives. When "the pill" was discontinued, the retinal edema disappeared. When therapy resumed, the same retinal lesion recurred. Both cases had complete resolution of retinal edema with no sequelae when the oral contraceptives were again withheld. In December, 1967, at the Ophthalmological Contact Lens Congress a discussion on changes during pregnancy indicated that the corneal curvatures will flatten due to the hormonal changes in late pregnancy. The relationship of this finding to the potential problems of women on oral

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Dr. Levinson is Associate, Department of Obstetrics and Gynecology, St. Francis Hospital and the Wilmington Medical Center.

contraceptives who wear contact lenses was suggested for further evaluation.[9] An excellent study by Peter and Parsons[10] demonstrated certain patients had an intolerance to contact lenses while on oral contraceptive therapy. Characteristic features of this intolerance are: (1) Characteristic indistinction of mires on keratometric readings. (2) Prolonged recovery period from edema and strain. (3) Lens adjustments to eliminate these disturbances being either ineffective or less effective than would be anticipated. (4) Subjective symptoms exceeding objective findings. (5) Photophobia inconsistent with objective findings. Peter's experience was that patients using "the pill" do not generally consider this medication. When one or more of above symptoms were present, it was felt mandatory to question as to the use of these steroids.

In April, 1968, Cornell and Kelman[11] reported on a study of 611 women prior to use of oral contraceptives and followed 305 of them for one to three years after start of therapy. No vascular or neurological lesions were noted, and they found no significant difference in the incidence of ocular abnormalities between the control and therapy groups.

In spite of much contradictory data, and following the release of British studies on the association of oral contraceptive use and the incidence of thromboembolic disease, the U. S. Food and Drug Administration decreed the following. As of July 1, 1968, the new uniform labeling for oral contraceptives stated that " . . . discontinuance is specified, if a sudden partial or complete loss of vision occurs or if there is a sudden onset of proptosis, diplopia or migraine. If examination reveals papilledema, or retinal vascular lesions, medication should be withdrawn."

During the past 12 months in an active Ob-Gyn practice the author has prescribed "the pill" over 1,000 times. No attempt has been made to specifically question patients regarding side effects but 11 patients have volunteered information on opthalmological effects possibly related to "the pill."

Case No. 1: Enovid-E used for three years. Complained of periodic headaches, blurred vision and nausea, after which changed to C-Quens for one year. Patient now asymptomatic. No ophthalmological examination.

Case No. 2: Enovid-E used for 11 months. Excessive tearing (epiphora) noted when watching TV or movies. Ophthalmological examination negative during this time. Symptoms disappeared when Enovid-E stopped. No eye symptoms but marked depression with use of Norlestrin.

Case No. 3: Enovid-E used for one year. Right cephalalgia with severe eye pain and "film" over eye noted almost weekly, usually on awakening. Ophthalmological examination negative. For nine months has been using Ovulen . . . syndrome less severe, and responds to mild analgesics and ice caps to head. Patient refuses to stop Ovulen.

Case No. 4: Ovulen and Ortho Novum each used for one year. Sporadic syndrome of eyes burning, excessive tearing and loss of vision. Patient has anxiety neurosis and under psychiatric care. Ophthalmological examination negative.

Case No. 5: Enovid-E used for six months during which time patient noted late in the day fatigue, blurred vision and "film" across eyes. When changed to C-Quens and symptoms increased, then changed to Ortho Novum when eye symptoms decreased. Ophthalmologist was *not* told of use of medication, diagnosed condition as "allergy," prescribed drops and glasses which cleared symptoms temporarily. No further difficulty when "the pills" were stopped.

Case No. 6: C-Quens used for three months when severe headaches and hot flashes noted. Syndrome ceased on discontinuing "pills." One year later tried Ortho Novum 1 mgm and similar syndrome noted with addition of blurred vision on third month of therapy. Ophthalmological examination negative. Syndrome disappeared when Ortho Novum discontinued.

Case No. 7: Patient used Norlestrin 1 mgm for two months. Complained of two attacks of blurred vision associated with severe unilateral headaches, also with nausea and vomiting. Past medical history of migraine. Ophthalmological examination negative.

Case No. 8: Patient wears contact lenses, and after starting Enovid-E noted a "film" on lenses that actually could be wiped off. One year later changed to Ovulen and no further eye symptoms. Ophthalmological examination negative.

Case No. 9: Patient wears contact lenses. Enovid-E used for three months during which time photophobia and excessive tearing developed. Symptoms disappeared when Enovid-E discontinued. Since then both C-Quens and Ovulen have been used without eye symptoms. Ophthalmological examination negative.

Case No. 10: Patient wears contact lenses. Enovid-E used for two months. Dryness of eyes noted, ie, "normal fluid for lenses to float on was lacking." Symptoms disappeared when Enovid-E discontinued. Ophthalmological examination noted dryness of eyes. Ovulen had to be discontinued after two months due to the same "dryness of the eyes" noted with Enovid-E previously.

Case No. 11: Patient wears contact lenses. Enovid-E used for one year, Ovulen one year, Ortho Novum 1 mgm used for six months. Since using "the pill" the contact lenses "have felt tight, the eyes feel dry, and I must blink a lot." In recent months she discontinued using her contact lenses in preference to the contraceptive pills! Ophthalmological examination negative.

Summary

The ophthalmological side effects of the contraceptive pill are infrequent, varied and difficult to document. Both the obstetrician and the ophthalmologist should be cognizant of these, and appropriate examinations performed. In the absence of positive ophthalmological findings it appears safe to continue these pills, and often the side effects will disappear on using a different steroid combination, but this finding is inconstant.

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THE NOT-SO-DAMNED SPOT

While he was stationed on Guam in 1945, Dr. Richard E. Shope spotted a fleck of mold growing on his wife's photograph. After the war, his experiments with cultures of this impertinent mold ultimately resulted in the isolation of a pure RNA which stimulates interferon production in human beings. What was more logical than to name the new RNA after his wife?

"In order to designate this active substance in terms less cumbersome and more specific than 'antiviral substance or material' it will be referred to hereafter as helenine. This name is selected partly because it is non-descriptive and noncommittal as to the nature of a substance about whose mode of action and structure we are still ignorant, partly because it is, so far as I am aware, not preempted, but largely out of recognition of the good taste shown by the mold producing the substance in locating on the picture of my wife, Helen, at the time of its isolation."

Helenine is the subject of numerous ongoing experiments to determine therapeutic potential against virus diseases.

Dr. Shope, who had previously isolated the virus responsible for malignant tumors in rabbits *(Shope's virus)*, died of cancer in 1966 at the age of 64.

Ca-Cancer Journal for Clinicians, Jan.-Feb., 1968.

NUTRITION DURING PREGNANCY

• Physicians, nurses and nutritionists need to concentrate on good communications with the prenatal patient; to encourage her to be willing to accept the need for, and to follow an adequate diet; and to be aware that the diet may need to be "custom-made" for the individual.

Mayton Zickefoose, M.S.

Every mother should be able to provide for the optimum development of her fetus, remain in good health throughout pregnancy, and encounter no unusual difficulties in the periods of labor, the puerperium, and lactation. Good nutrition enhances the probability of a healthy mother and a healthy infant.

In their studies of human culture, medical sociologists have found that the values of a society are not always in the best interest of optimum health. Such a paradox can be seen in our modern American society where the ideal woman is one who is very thin. For example, recently the idol in the fashion field was Twiggy, a 91 pound, 5 foot 6 inch beauty (?). Some Miss America candidates each supposedly "the all American woman," have had similar dimensions, but are these young women the ideal for which all girls should strive? Medical experts are not so sure. Eventually most of these women become wives and mothers. Is their reproductive efficiency affected by their undernourishment? Beaton and McHenry[1] consider gross underweight synonymous with undernourishment.

Goals to Have and Meet

Goals for a successful pregnancy include a healthy mother; a healthy infant; a reduction in prematurity; a reduction in infant mortality and mental retardation. The ideal would be for the woman to go into pregnancy in a state of good nutrition. It would be well to remember Dr. Stearn's statement, "the best provision for well-being in any period of life is to arrive at that point in good nutritional and physical status."[2] Fewer complications in pregnancy, fewer premature births, and healthier babies result when the mother is well nourished prior to conception. Tompkins[3] has found that the woman who is underweight at the time she becomes pregnant has the greatest probability of premature labor and toxemia. He found a strikingly high incidence of prematurity in infants born of mothers who were both underweight and anemic.

Not only is diet before pregnancy important, but the liberal nourishment of the mother during pregnancy has been found to make a signficant contribution to her health and the health of her infant. Research shows that the incidence of miscarriage, premature births, stillbirths, and deaths in early infancy was significantly lower in the groups of women who were on good diets. These mothers were also in better health during pregnancy and were better obstetrical risks.

Cultural and Regional Food Patterns

Since our population comes from all areas of the United States as well as from other countries, it includes a variety of dietary habits and tastes. Specific cultural patterns of eating should not be condemned, but evaluated, and if there is a need for change, help

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Miss Zickefoose is Nutrition Consultant, Delaware State Board of Health, Dover, Delaware.

Recommended Dietary Allowances During Pregnancy and Lactation

	Normal Woman	Pregnant Woman	Pregnant Teen-Age Woman	Lactating Woman (850 ml milk daily)
Calories	2100	2300	2500	3100
Protein, gm	58	78	78	98
Calcium, gm	0.8	1.3	1.8	1.3
Iron, mg	15	20	20	20
Vitamin A, I.U.	5000	6000	6000	8000
Thiamine, mg	0.8	1.0	1.1	1.2
Riboflavin, mg	1.3	1.6	1.6	1.9
Niacin, mg equivalents	14	17	18	21
Ascorbic acid, mg	70	100	100	100
Vitamin D, I.U.		400	400	400

given in choosing acceptable substitutes. For instance, collard greens, a favorite in the south, are just as nutritious as the more commonly suggested spinach and kale.

With Spanish-speaking peoples, it is well to mention the value of some of their own fruits and vegetables, ie, pineapple, mango, beans, etc., when outlining a diet for them. Then, they might be more willing to accept some distasteful "Americano" notion of what to eat for baby. Because of the way in which the corn is prepared, the Mexican tortilla supplies calcium and thus can help as a milk supplement.

Characteristic food habits of every regional or national group should be respected; there are good nutritional practices in each of them. Nutritional needs may be met by many different patterns of eating. If a pre-natal diet is to be effective, it behooves the physician, the public health nurse and the nutritionist to take cultural factors into consideration in planning a diet which will be followed.

Pregnancy in the Teens

Teen-age pregnancies often encounter difficulties. About one-fourth of all first pregnancies occur in the teen-age years. Premature births, toxemia, and difficult deliveries are most frequent in these young mothers, which may reflect the stresses of pregnancy superimposed upon a body not yet fully developed. If the teen-age pregnant girl is unmarried she may be under severe emotional stress which can interfere seriously with her ability to maintain positive balances of nitrogen and minerals.

Teen-age girls are known to have the least satisfactory diets of any age category. They succumb readily to social pressures, are overly concerned about slender figures, and indulge in food jags. Their intake of sweets, carbonated beverages, and a wide array of snack foods may be excessively high, while milk, vegetables, fruits, and eggs are often shunned. Discovering ways to guide the adolescent girl into satisfactory eating patterns provides a real challenge to the person giving her diet counselling.

It might be well to do a bit of bargaining with the teen-ager, working the potato chip and soft drink as snacks in her diet, especially if the bargain is "if you eat mine, you can have yours."

Nutritional Allowances

Basically, the diet of a pregnant woman is a well-balanced conventional one, modified to emphasize foods of high nutrient content. The above table gives the recommendations of the Food and Nutrition Board.[4] The allowances for pregnancy apply to the second and third trimesters. The allowances for the teen-age pregnancy are based upon the normal allowances of the 15-to-18-year-old girl plus the increments for pregnancy.

Weight is a Factor

Of prime importance in preventing complications such as toxemia and prolonged labor is rate and amount of weight gain during pregnancy. The average gain is around 24 pounds. In recent years, a gain of as little as 12 to 15 pounds was advocated by some obstetricians. Tompkins[3] along with some other researchers feel that in view of the mother's metabolic needs and the needs of her developing fetus and surrounding organs, less than 20 to 24 lbs is an inadequate weight gain. He also points out that a smooth and constant weight gain is most beneficial in preventing the development of toxemia. He recommends 5, 8 and 10 pounds during the first, second, and third trimester respectively, regardless of whether the woman is overweight or underweight. He feels very strongly that an overweight pregnant girl or woman should not be put on a reduction diet. The diet should not be so low in calories that the protein is used to supply energy, making it unavailable to meet growth needs.

Restriction of Sodium

Some physicians automatically put their pre-natal patients on a restricted sodium intake as a preventive measure. In most cases if the diet is adequate, which means a good supply of high biological value protein, the body is able to handle the sodium. On the basis of animal experiments Pike[5] has suggested that sodium restriction during pregnancy may be undesirable.

Summary

No one would deny that the important consideration of diet in pregnancy is but the continuation of the woman's nutritional experience. Her ability to withstand this physiologic stress depends on her general fitness — itself very much a function of her nutrition. The obstetrician's contribution in the long-term health picture of the pregnant woman and her family, through his role as a nutrition educator, is growing with our advancing knowledge.

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WARNING! WARNING! WARNING!

A recent article in the Lancet calls attention to nine cases of eye injuries incurred from the flying corks of champagne bottles. Both plastic and traditional champagne stoppers have been indicted and the ophthalmologist authors report that the inventor of the champagne cork, Dom Perignon, was himself blind although there is no report in the extensive wine literature as to how or when he lost his vision.

The niceties as well as the precautions to be observed during any festivity associated with the delights of champagne are reviewed by the authors:

"These injuries can be avoided by care in opening the bottle. The Comite Interprofessionel du Vin de Champagne has published a handbook which describes how to serve it. A napkin should be held over the cork and the neck of the bottle while the wire is being undone, and the cork is gently eased off with the bottle pointing away from the face. There should be no "pop" but merely a sigh. White gloves may be worn but are not essential." *(Champagne-Cork Injury to the Eye. Lancet, Sept., 1967)*

Special Reports

ANNUAL MEETING OF THE ENDOCRINE SOCIETY IN CONJUNCTION WITH INTERNATIONAL CONGRESS OF ENDOCRINOLOGY

Mexico City, July, 1968

George R. Fisher, M.D.

What would have been the fiftieth annual meeting of the Endocrine Society was not held this year. It was originally scheduled to be held for three days before the International Congress of Endocrinology in Mexico City, but was cancelled because there were too few advance registrants. The International Congress which followed, however, was so superior to the usual annual meeting of the American Endocrine Society that the contrast clearly demonstrated the vast acceleration of good research all over the world. American Science still dominates the international scientific scene, but it is obvious that it is going to have to work harder and harder to justify its smugness. The International Congress was attended by four thousand international colleagues at the Centro Medico, an enormous medical center with quite impressive facilities. There were nine simultaneous sessions for five days; the program alone was eighty-two pages long and there were two hundred pages of abstracts. What follows obviously only touches on the highlights of a monumental and brilliant meeting.

The Mechanisms of Hormone Action

Five years ago it would have been possible to describe many results of hormone action, but it would not have been possible to name a single biochemical reaction in which any hormone participates as a molecule. That era of endocrinology has just about come to an end. Last year it was news that the steroid hormones as a class had a mechanism of action in which they modified the messenger RNA of the target cells, causing the production of new protein. Thyroxin now also seems to belong to the class of hormones which modify cellular enzymes through the genetic apparatus.

This year it appears that a second major mechanism for hormone action is the activation of adenyl cyclase. This enzyme lies in the cell wall of all tissues except red cells, and it converts adenine monophosphate into 3'-5' cyclic AMP (cAMP). If the hormone can be regarded as the extracellular "first messenger," cAMP may be viewed as the intracellular "second messenger" of a relay team. Tissues may differ in what they do in response to cAMP and tissues vary in reactivity to different hormones, but once insulin, epinephrine, glucagon, parathyroid hormone, and the pituitary trophic hormones reach their target cells they seem to have fully discharged their function when they have activated or inhibited adenyl cyclase. No doubt things are more complicated, but at the moment there is a world-wide scramble to climb on this bandwagon.

The Control of Insulin Secretion

There has long been a presumption that the stimulus to insulin release is the level of blood (possibly portal vein blood) glucose. It was not clear whether a threshold existed, or whether the insulin released was proportional to some increment in glucose. As was widely discussed at the congress, the true situation is clearly too complicated to justify the proposed use of blood glucose-to-insulin ratios as "diabetogenic indices," even when such an index is applied to a standardized situation like a glucose tolerance test. For example, a given level of plasma insulin may have emerged rapidly from storage in the islet-cell granules, or it may have come more slowly from protein synthetic pathways in the islet-cell enzymes. Two persons thus may have identical levels of plasma insulin, but one is struggling to maintain the level while the other has productive capacity to spare. Additionally, there are wide swings in plasma insulin levels with constant blood glucose in the same patient, not to mention the difficulty of comparing different patients. Glucose introduced intraduodenally reduces by fifty per cent the proportion of circulating insulin removed by the liver; and fluctuations in target tissue responsiveness-to-insulin-action are also likely.

Additionally, the islets apparently respond to protein as a stimulus for insulin release as well as to carbohydrate. The nature of the mixture of circulating amino acids has a profound action on the metabolism of peripheral tissues, and there is some reason to believe that a fall in serum alanine and/or a rise in serum glycine causes the brain to begin metabolizing ketone bodies (instead of pure glucose) in a state of chronic fasting, thus affecting the desirable insulin level. Magnesium levels are clearly very important to the response of tissues to hormones affecting (as insulin and glucagon appear to) adenyl cyclase. Additonally, it is very clear that a low serum calcium level (in cows, at least) inhibits the release of insulin and produces a diabetic state which is promptly remedied by calcium administration.

Finally, the act of eating probably causes insulin secretion, since both secretin and pancreazymin induce insulin release, and these gastrointestinal hormones are stimulated by HCL and amino acids, respectively. When a mechanism of this sort exists, it is a near certainty that patients will eventually be found with disorders of the mechanism. Clinicians have long been accustomed to ignoring the limitless theoretical possibilities inherent in an observation, and pressing on to the probable practical consequences of it. It looks, however, as though it will be a long time before we are able to define diabetes in terms of plasma insulin level, and to define pre-diabetes is obviously even more elusive. Now that reliable plasma insulin levels are available at the Wilmington Medical Center, Delaware clinicians will be able to participate in the search for a right set of circumstances which bring out critical differences in plasma insulin levels.

"Growth" Hormone

What seemed like a basic understanding of the growth hormone was knocked about pretty badly at the Congress. In addition to surges of the plasma level of GH in response to hypoglycemia and amino acids, it would appear that major rises in plasma level are produced by falling asleep, the administration of nicotinic acid, propanalol, or salicylates. The administration of epinephrine blocks most of these effects and seems to inhibit GH secretion, but emotional stress seems to cause a stimulation. In spite of the demonstration of wild, erratic swings in the plasma level, it is not at all clear that these fluctuations have any physiological significance at all. Comments from the floor indicated that plasma assays for growth hormone have yielded bizarre and untrustworthy results in disease of the pituitary, and it would appear that the assay can be merely suggestive or confirmatory until such time as the nature of the hormone is clarified. Perhaps the real body-blow to our concepts was the demonstration of normal linear growth in children who had no circulating "growth" hormone as measured by radio-immunoassay but who had normal levels of "sulfation factor." It was always clear that immunoassay might indicate the presence of a protein that was biologically inactive, but the whole validity of radio-immunoassay is open to question if it fails to detect biologically active material. If the promotion of growth in children is not proof for biological activity, it would be hard to say what would be proof; and it begins to be necessary to ask whether what we have been calling growth hormone really has anything to do with growth.

Calcium Metabolism

The hypothesis was advanced that Vitamin D is inactive, requiring modification into an active metabolite by the intestine. Since Vitamin D is absorbed in chylomicra through the thoracic duct lymph, it must be recirculated through the bile to reach the point of activation.

The administration of phosphate was found to be helpful in the treatment of Vitamin D resistent rickets (a disease thought to be due to inability to absorb Vitamin D) as well as the osteoporosis associated with renal tubular acidosis. The osteoporosis of chronic renal failure, on the other hand, appears to be due to the secondary hyperparathyroidism, which is in turn related to a massive tissue accumulation of phosphate. Merely lowering the serum phosphate with intermittent dialysis only touches the edge of this problem; and so secondary hyperparathyroidism (with calcification of the heart and muscles) has become one of the major problems in chronic dialysis centers.

THE SECOND NATIONAL CONGRESS ON MEDICAL ETHICS

Chicago, Illinois, October 1968

William Thomas Hall, M.D.

The recent rapid advances in the field of medicine have continually changed our world so that standards of morals and ethics which were acceptable in years past now require reexamination and evaluation. The obvious counterpart of this in social advancement is the case of the plantation owner who felt it was perfectly ethical to own a horse, a dog and a slave but it was completely unethical for anyone to steal his horse, dog or slave. While we still consider his property rights to the dog or the horse, it is no longer acceptable in this country and in most of the world for people to own lock, stock and barrel, another human being. The recent problems of organ transplants have brought up the question whether a man owns his body and whether he has a right to decide how it should be disposed of after death. Many other similar problems have arisen. When is a man dead? What is death? Who shall receive scarce hemodialysis or scarce organs? What are the rights of the illegitimate child? Of the child born by artificial insemination as against the rights of the subsequent child born of both parents? When is the fertilized ovum a human? What of abortion, euthanasia, gene manipulation, air pollution, and the evaluation and development of new drugs? Recognizing that these questions need answers in order that intelligent ethical codes and laws may be developed, the judicial council of the American Medical Association convened the Second National Congress of Medical Ethics. Excellent speakers were assembled including such well known men as Dr. Walter H. Judd, Dr. Irvine H. Page, Dr. Dwight I. Wilbur—current president of the American Medical Association, Dr. Frank J. Ayd, who distributes the *Medical Moral News Letter* and many others. All are either professors or have been at some time president of their state or county medical society. In addition to the 14 physician speakers, there were three lawyers, one professor of pharmacology and one public relations man.

Many of the problems were dismissed as insolvable at present. The most helpful paper was presented by Dr. Frank J. Ayd from Baltimore, a Fellow of the American Psychiatric Association. He addressed himself to answering the question, "What is Death?" He divided death into the following: (1) clinical death; (2) brain death; (3) biological death; (4) cellular death. Clinical death is described as the point at which all vital signs cease. This is the legal death that we have known for sometime. Brain death is described as coming ten minutes after circulation ceases to the brain. This consists of cortical death, midbrain death and brain stem death, in that order. Cortical death may occur without midbrain or brain stem death; these individuals are the vegetables whom we occasionally see as the result of brain injury, either traumatic or vascular. Regarding cellular death, Dr. Ayd states that it is of benefit that different parts of the body die at different rates. This permits us to remove the kidneys, liver, heart, and hopefully other organs after actual biological death has taken place. He defines biological death as the cessation of integrated physiological interdependence of the cells.

Dr. Ayd developed an interest in the definition of death before heart transplants. As a neurologist he is involved in deciding when the machines should be shut off in the Intensive Care Unit and this involves judgment as to when death has occurred. It is generally agreed that the use of ordinary methods are necessary to sustain life but not extraordinary methods. Extraordinary methods he defines as those that are costly, unusual, expensive and dangerous. Extraordinary methods may be discontinued if they are not producing the desired effects of restoring the individual to health, or withdrawn as soon as it is evident that no further improvement can be obtained from their use. Dr. Ayd feels that the nearest relative should be consulted and his permission obtained before discontinuing this expensive equipment with its high requirement of valuable medical personnel. He quoted a legal decision that these supports may be discontinued when it is apparent that further treatment is futile. Delay of biological death may be obtained by the respirator or by pacemaking. In a court-tested case the jury agreed that there was no point in using a respirator when brain death has occurred if it is not planned to remove an organ for transplant. Brain death is now recognized as legal death in many countries and is a concept for defining death supported by the National Academy of Sciences and many other scientific organizations in this country. An *ad hoc* committee from Harvard University recently listed the following criteria for brain death: unreceptivity and unresponsiveness, no spontaneous muscle movements, absence of spontaneous breathing, loss of reflexes and muscle tone (ice water in the ears does not produce nsytagmus, pupils dilated and fixed to light, etc.), isoelectric EEG even with stimulants, with all of these evaluations to be repeated after 24 hours. There has been surprising acceptance of these criteria. Some of the tissue and transplant committees suggest a repeat evaluation in twelve hours, four hours, and most recently, in two hours. Dr. Ayd emphasized that brain death as legal death is not really a new diagnosis of death since there is no lapse of time between brain death and biological death. If artificial means of supporting the circulation and respiration were not available, the two would be practically simultaneous.

Having drawn his line for death at the point of brain death, Dr. Ayd gave notice that he would not step beyond this line and accept cortical death alone as a criteria. In fact, he used such terms as murder and homocide for those who would discontinue intravenous or other feedings for such patients. He stated that "death should be allowed to run its course," that it was homocide to hasten death, even though it is inevitable. Irrevocable coma without brain death is not death even though there is no hope for recovery; he is against any form of euthanasia for such unfortunates.

Another subject vexing physicians has been "Who gets the organ when the supply is short?" The question put to Paul A. Freund, S.J.D., Professor of Law at Harvard University, seemed unanswerable. He prefers not to have that problem to deal with and stated that the Deity could not answer it. He does not agree with the Washington state group which has turned the problem over to a lay committee. This lay committee selects who gets the kidney transplant or dialysis on the basis of the patient's usefulness to society. In other words, an alcoholic with no children would have to defer to a father of three with a good job and a good record. The problem arises when the alcoholic is the father of three and the upstanding citizen is single. Dr. Ayd feels that the patient with the psychopathic personality who would not take care of the kidney should not have a priority over one who would. No consideration is given to the property rights of the family of the donor of the kidney. In fact it was suggested that it might be unethical even to tell the donor family who is to receive the heart or kidney on the basis that they might ask for some compensation if the recipient were well enough off.

At a round table discussion between Dr. Ayd and Professor Freund with Edwin J. Holman, the lawyer secretary of the AMA Judicial Council as the moderator, the 225 in attendance from 39 states and Canada produced many questions for the speakers. Mr. Holman after reviewing these stated that there were too many differences of opinion and that it was unlikely that they could be reconciled. He promised that at the next conference on medical ethics, there would be workshops in which these hot problems could be openly discussed and hopefully worked out.

Robert B. Hunter, M.D., of Washington, described his state's method of policing the profession. The Medical Disciplinary Board of Washington has been in existence since 1955. It consists of seven men who are elected, one from each congressional district. By law they are immune from suits resulting from their actions and decisions on behalf of the Board. The office is staffed by the Attorney General. Dr. Hunter pleaded for physicians to expose misconduct in others: "We do not lose stature by admitting there are bad apples in the profession, rather it helps our image to remove them." He stated there was wide variation in the number of investigations by disciplinary committees in different states. The cases that have come before the Disciplinary Board in Washington have fallen into four categories. According to their frequency, they are misuse of narcotics and dangerous drugs, unholy pursuit of monetary returns (excessive fees and unnecessary procedures), charlatanism, and outright criminality (fraud, theft and murder). The Board has obtained good cooperation with the law and with the medical organizations of the state. It has generally been the desire of the medical organizations to turn malpractice cases over to the Board and the government has been most cooperative in passing laws granting powers to maintain adequate discipline. Buttonholed for questioning after the meeting, Dr. Hunter stated that the majority of those requiring discipline by his board were emotionally ill. Many of them were psychopathic personalities who had been disciplined in other states. Because of this it is their habit to send the results of their procedures in rescinding a man's license to the Medical Disciplinary Committee of the 49 other states. As for the therapy for these maladjusted physicians, he stated that he knows of no effective therapy.

Charles F. Forbes, Esq., a nationally recognized authority on hospital law, who with his firm represents the California Hospital Association, discussed the ethics of denying privileges or rescinding hospital privileges to physicians. He stated that any basis for disciplinary action should also be clearly outlined. There is a California Judicial Review Committee which hears charges by physicians against hospitals denying them privileges. It has the power to subpoena witnesses and to swear in witnesses so that they testify under oath. It may also inspect records. It reports to the Governing Board which then takes action. A doctor may appeal to the Governing Board but he knows of no instance in which the Governing Board did not support the Judicial Review Committee. He stated that the Code of Medical Ethics of the AMA has insufficient statements in its by-laws to prevent misunderstanding. There are model medical staff by-laws supplied by the State of California and these will be incorporated in the AMA model medical staff by-laws which will be out some time next year.

Dr. Forbes suggests that the physicians working on the committees for the hospitals are performing a very valuable service for those hospitals but leaving themselves open to suit. In many states there are laws which protect physicians on hospital committees from these suits. Where there are not such laws he recommends that the hospital carry insurance to protect the physicians.

The delegates were entertained by a mock hearing of the Medical Ethics Committee. Three cases were tried. One was for flagrant incompetency which was apparent to all physicians present. This man was disciplined by being expelled from the county medical society. The second one was for excessive fees by a competent physician and this resulted in no decision. The third was for the use of digitalis, diuretics and other dangerous drugs in the treatment of obesity by a competent internist and again no decision was rendered.

Although there were members of the clergy present, they did not speak directly on the subject of ethics. The opinions given primarily were those of physicians and lawyers as it was felt that the opinion of the Medical and Law Departments should be formed without conflicting theological complications.

Continued on Page 135

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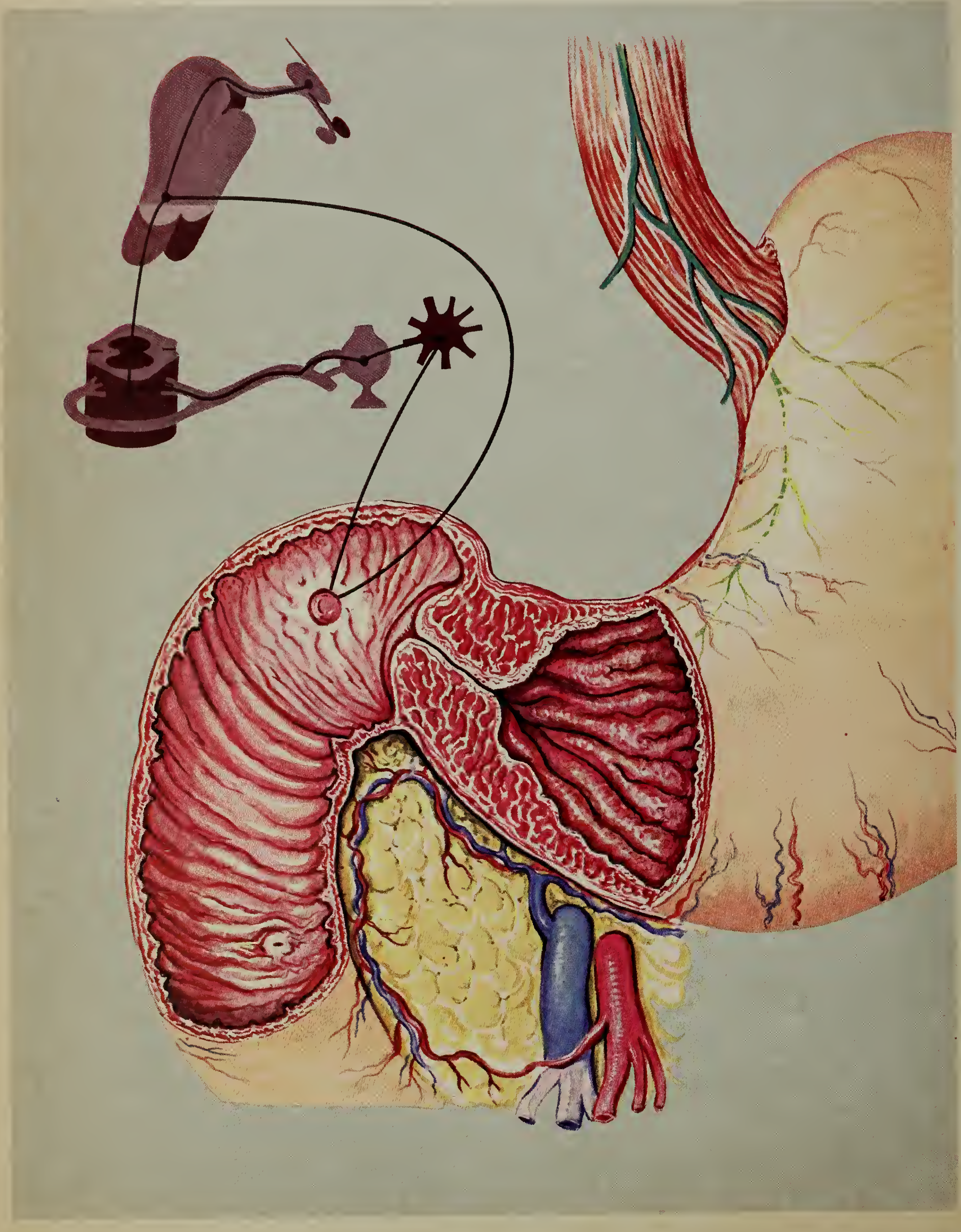
Available: NTz Nasal Spray in squeeze bottles of 20 ml.; NTz Solution in bottles of 1 oz. with dropper.

Winthrop
Winthrop Laboratories, New York, N.Y. 10016

(1286M)

Healing the ulcer crater



Pro-Banthīne®

brand of
propantheline bromide

blocks ulcerogenic autonomic impulses

Therapeutic Activity—Pro-Banthīne blocks ulcerogenic impulses at both parasympathetic effector sites and ganglia and at sympathetic ganglia.

This dual action, a capacity quite beyond that of belladonna derivatives, has been shown repeatedly to reduce gastric secretion, to suppress gastrointestinal motility and to relieve ulcer pain.

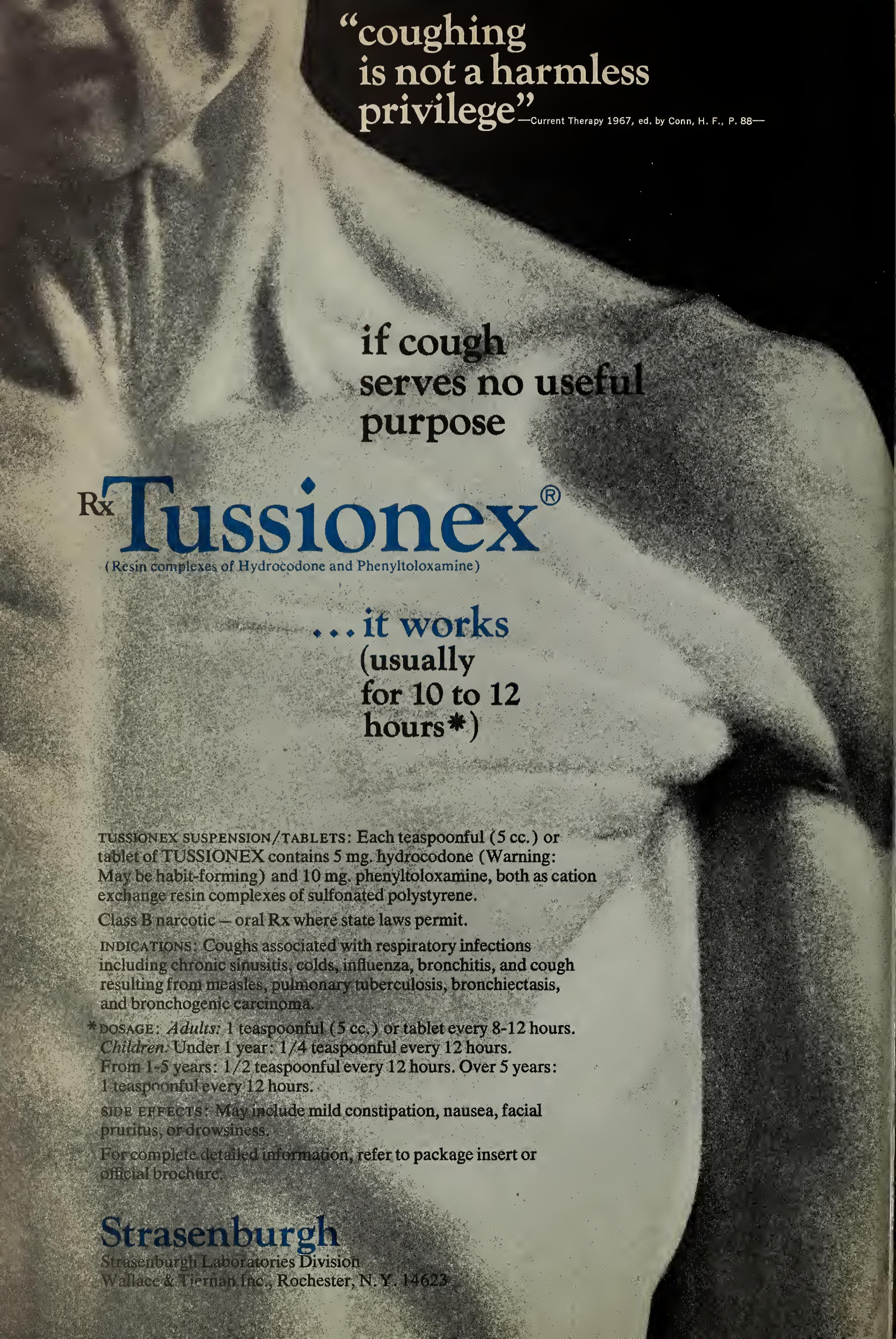
Healing Environment—Thus, Pro-Banthīne, together with other standard measures, creates a favorable environment to hasten healing of the ulcer.

So widely is this ability recognized that for years Pro-Banthīne has been the most widely prescribed medication for treating peptic ulcer.

Indications: Peptic ulcer, gastroenteritis, pylorospasm, biliary dyskinesia, functional hypermotility and irritable colon.
Contraindications: Glaucoma, severe cardiac disease.
Precautions: Since varying degrees of urinary hesitancy may occur in elderly men with prostatic hypertrophy, this should be watched for in such patients until they have gained some experience with the drug. Although never reported, theoretically a curare-like action may occur with possible loss of voluntary muscle control. Such patients should receive prompt and continuing artificial respiration until the drug effect has been exhausted.
Side Effects: The more common side effects, in order of incidence, are xerostomia, mydriasis, hesitancy of urination and gastric fullness.
Dosage: The maximal tolerated dosage is usually the most effective. For most adult patients this will be four to six 15-mg. tablets daily in divided doses. In severe conditions as many as two tablets four to six times daily may be required. Pro-Banthīne (brand of propantheline bromide) is supplied as tablets of 15 mg., as prolonged-acting tablets of 30 mg. and, for parenteral use, as serum-type vials of 30 mg. The parenteral dose should be adjusted to the patient's requirement and may be up to 30 mg. or more every six hours, intramuscularly or intravenously.

981 4/69

SEARLE *Research in the Service of Medicine*


"coughing
is not a harmless
privilege"—Current Therapy 1967, ed. by Conn, H. F., P. 88—
if cough
serves no useful
purpose
Rx Tussionex®
(Resin complexes of Hydrocodone and Phenyltoloxamine)
...it works
(usually
for 10 to 12
hours*)

TUSSIONEX SUSPENSION/TABLETS: Each teaspoonful (5 cc.) or tablet of TUSSIONEX contains 5 mg. hydrocodone (Warning: May be habit-forming) and 10 mg. phenyltoloxamine, both as cation exchange resin complexes of sulfonated polystyrene.

Class B narcotic – oral Rx where state laws permit.

INDICATIONS: Coughs associated with respiratory infections including chronic sinusitis, colds, influenza, bronchitis, and cough resulting from measles, pulmonary tuberculosis, bronchiectasis, and bronchogenic carcinoma.

*DOSAGE: *Adults:* 1 teaspoonful (5 cc.) or tablet every 8-12 hours. *Children:* Under 1 year: 1/4 teaspoonful every 12 hours. From 1-5 years: 1/2 teaspoonful every 12 hours. Over 5 years: 1 teaspoonful every 12 hours.

SIDE EFFECTS: May include mild constipation, nausea, facial pruritus, or drowsiness.

For complete detailed information, refer to package insert or official brochure.

Strasenburgh
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Highlights

THE DETECTION OF INBORN ERRORS OF METABOLISM

R. Rodney Howell, M.D. — *Wilmington Medical Center Pediatric Conference, September, 1968.*

The list of genetic metabolic diseases which are frequently referred to as inborn errors of metabolism is growing rapidly. At the present time approximately fifty diseases are known in which a specific hereditable enzymatic defect is present and undoubtedly the list will grow. Although these diseases are usually rare, ranging in incidence from 1 in 300 to 1 in 100,000 births, the availability of several common and relatively simple screening tests for their presumptive diagnosis and detection is important.

It is obvious that tests which can be expected to produce so low a yield must be both cheap and simple. Since effective therapy is available for some of these diseases, we have a moral obligation to diagnose them in time to achieve effective therapy. From a purely economic stand-point, early diagnosis and therapy of a disease such as phenylketonuria (PKU) if it prevents mental deficiency and keeps a child from eventually becoming institutionalized is very worthwhile. It has been estimated that it costs the community at least $200,000 per patient to support an institutionalized person for his entire life span. PKU and other screening tests are not definitive and require back-up laboratory confirmation which may be sometimes elaborate but which can be referred to those centers particularly interested in the genetic metabolic diseases.

In recent years blood screening for PKU has become mandatory in almost all states. The Guthrie test, which is specific for phenylalanine, can be cheaply performed on dried blood; it is generally used. I think this should, however, not supplant the ferric chloride test on urine. The ferric chloride test is easily performed by dropping ferric chloride solution directly on a wet diaper or by the use of dip sticks (Phenestix®) which also uses ferric chloride as their reagent. The test is non-specific, producing an immediate color, usually green with many keto-groups. As the Guthrie test picks up only PKU, ferric chloride tests should also be routinely run at one month of age to pick up other keto-producing abnormalities such as histidinemia. Other compounds which give a positive reaction with ferric chloride include phenothiazines, Lysol and salicylates (though not aspirin directly so the test cannot be used to determine the ingestion of aspirin in gastric contents).

The second important screening test is the nitroprusside reaction for detecting the presence of sulfhydryl compounds. This test is positive in cystinuria which is probably the most frequent of the genetic abnormalities with an incidence as high as about 1:250 in one surveyed group. In addition to its being performed in infants, it should be performed on all patients with recurrent stones. A positive test is indicated by a beet-red color. In cystinuria, it is cystine which is very insoluble which is responsible for renal calculi.

Homocystinuria produces an identically positive reaction but a different clinical syndrome. In this situation homocystine, another sulfur amino acid, is excreted in excess. The patients resemble Marfan's syndrome but unlike Marfan's patients are mentally retarded and have tight instead of lax ligaments. It is important to recognize homocystinuria because of its recessive genetic transmission as opposed to Marfan's dominant inheritance; this obviously makes for different genetic counselling to the involved parents.

TABLE 1

Some Diseases Detectable by Urine Screening Tests

Disease	Ferric chloride	Cyanide-nitroprusside	Benedict's test (Clinitest tablets)	Nitrosonaphthol	Dinitrophenylhydrazine	Spot test for urinary metachromatic material
Phenylketonuria	+				+	
Maple syrup urine disease	+				+	
Galactosemia			+			
Hereditary fructose intolerance			+			
Homocystinuria		+				
Cystinuria		+				
Tyrosinemia	+		±	+	+	
Histidinemia	+					
Cystinosis			±			
Hurler's syndrome						+

A third important screening test is Benedict's test (or *Clinitest®*) which determines the presence of reducing compounds (usually sugars). A positive test can be further checked by the use of one of the paper tests (such as Clinistix®) which are specific for glucose. The identification of a reducing sugar, once it is known not to be glucose, requires thin-layer chromatography. This is a relatively easy technique using silver nitrate as a stain for the various sugars which migrate at different speeds. Reducing sugars are not necessarily abnormal in the neonate, but are distinctly abnormal after six months of age. In infants with galactosemia who appear as severe "failure to thrive" the prescription of a lactose-free diet (which can be achieved by a simple elimination of milk products from the infant's diet) results in a dramatic clinical improvement.

Unfortunately many of the biochemical diseases have no clinical signs except for mental retardation so that laboratory diagnosis is particularly important. Concern has been voiced regarding the wisdom of diagnosing and sustaining to maturity patients with rare inborn diseases of metabolism: Will this result in an increased gene frequency within the general population of the abnormal gene? A reassuring answer can be given to this type of worry. The gene for PKU is a common one; it is estimated that approximately one in fifty persons is heterozygous for this condition. However, the disease (which requires a homozygous affected state) has an incidence of only one per 10,000 population so that successful therapy of a phenylketonuric infant does not appreciably change the gene frequency for the disease.

A fourth screening test available but not commonly used is the nitrosonaphthol reaction which detects tyrosinuria which also gives a positive Benedict's reaction. The detection of abnormalities of mucopolysaccharides, such as Hurler's disease, Morquio's disease and Hunter's syndrome may also be done by using toluidine blue which stains metachromatic substances. Because the diagnosis of diseases such as PKU involves the prescription of a drastic and somewhat difficult diet and because the rigid adherence to such a diet will actually be damaging with an erroneous diagnosis, it is important that positive screening tests be confirmed by more specific analyses of blood and urine. A summary of these screening tests and the conditions in which they are positive is shown in Table 1.

* * *

The surgeon must have: the wisdom of a Solomon; the touch of a woman; the heart of a lion; the constitution of an ox. *John B. Deaver*

INDIGENT CARE: State Hospital Dilemma

• A policy statement from the Association of Delaware Hospitals on the financing of hospital care for the indigent and medically indigent.

RICHARD R. GRIFFITH

The State's Primary Problem in the Field of Health

Public Law 89-97, Title XIX, offers states federal matching funds in the provision of health care for those under 21, their caretakers, the disabled, and those over 65 when medicare does not cover. Under Title XIX states must participate on a matching basis by January 1, 1970. Delaware, one of the earliest, began to participate in this program in October, 1966, covering with state funds (those usually appropriated to the general hospitals of Delaware for maintenance and operation) matched by federal funds, the first five items under Title XIX (the minimum requirement) for inpatient and outpatient services in hospitals, doctors' home and office visits, laboratory and x-ray examinations, extended care in nursing homes, plus drugs.

Public Law 89-97 requires that each state provide by 1975 for all indigent and medically indigent persons needing health care the same services provided by that state for those eligible under Title XIX.

This latter requirement of Public Law 89-97 constitutes the primary financial problem in health care for Delaware in the next four or five years (currently hospitals write-off annually about $3,000,000).

One need look back only over the last five years to recognize that the cost of care in hospitals has increased very rapidly and one can only suppose that in the next five years the cost will continue to rise. For this reason, the $3,000,000 mentioned above can be looked upon only as a starting point for the State's consideration. If the State is to assume the full burden, historically carried by the voluntary hospitals, more than $3,000,000 must be found to meet this expense. At this time there is no provision for federal matching funds in these areas of service.

It should be kept in mind also that this write-off of $3,000,000 applies only to those who receive care. Representatives of welfare and health agencies are very conscious of the fact that there are hundreds of Delawareans who do not receive adequate care because they neither see doctors nor visit clinics due to various obstacles.

Some of these obstacles are:

(1) The strict eligibility requirements under Title XIX.

(2) Lack of transportation.

(3) Lack of support by the counties of the State for appropriate programs.

If an accurate estimate of the cost in 1975 for proper health services for all Delaware citizens is to be made, consideration must be given not only to the advancing cost of hospital care but also to the cost of caring for hundreds who in 1968 have not received adequate service.

Hospital's Point of View

Historically, hospitals have carried the burden of the indigent sick in Delaware but beginning with 1960, agreement was reached with the State government to seek federal matching funds where such funds are available. In 1969 this will produce for the hospitals income of about $2,000,000 as opposed to approximately $1,000,000 received by state grants in 1960. As indicated above, hospitals continue to write off about $3,000,000 in charges for service each year and, also, as indicated above, this write-off may be expected

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Mr. Griffith is Executive Director, Association of Delaware Hospitals, Inc., Wilmington, Del.

to increase. Obviously, hospitals cannot continue to absorb this loss.

As critical as funding of hospital programs has become, another problem associated with financing of the care of the indigent sick is even more disturbing. Medical education, both for undergraduate medical students and physicians practicing in our communities, normally associated with the voluntary hospitals, has suffered to such a degree that Delaware is no longer sufficiently competitive in the recruitment of interns and residents to meet the needs of the State.

The implications of this deficiency are obvious. If medical education does not keep abreast of medical progress elsewhere, it must of necessity fall behind. The hospitals of Delaware are lacking in manpower and money.

This does not mean that service delivered by hospitals within their limits is not excellent, nor does it mean to imply that the indigent sick who come to the hospitals for care are inadequately treated. What it does mean is: (1) that hospitals are denied by State fiscal policy the opportunity to be progressive in the field of education and professional growth; and (2) that they are prevented by this same fiscal policy from reaching out into the deprived areas, metropolitan and rural, to provide needed services to those who for some reason do not have the means to obtain service from doctors or existing institutions.

In Kent and Sussex Counties over the years this deficiency has been so glaringly apparent that the Department of Public Health has attempted to repair some of the loss, but that Department, with problems of its own, cannot be expected to do the total job. It should be praised for its effort.

Viewpoint of the Public

From the viewpoint of the individual who is forced to avail himself of hospital service, hospitals are losing ground in a long drawn out struggle to avoid charging the private patient for services delivered to the patient who cannot pay. If the hospitals are to remain in business, they must pay their bills. If they can't get the money from governments, they must get it from private sources. Contributions to hospitals no longer come in sufficient volume to meet either the cost of charity service or expansion of program. Income from the State does not provide for the indigent sick. The cost of caring for the indigent must be included in the charges to those who are able to meet their obligations. This is added cost imposed upon the increasing expense of medical care. It affects not only individuals, but third party payors, such as Blue Cross, and even the government. There is no one to support the voluntary non-profit hospital but the public. Rather than load these charity costs on the percentage of population who pay their hospital bills, it would seem far more just and reasonable to distribute the cost of caring for indigent sick on a tax base, the broadest we can employ in our democratic process.

The citizens of Delaware are suffering in several ways. They are subject to unwarrantable charges at a time when they can least afford them, namely, following hospitalization, and they are deprived by state policy of the progressiveness that is needed in all institutions. It is recommended, therefore, that the State give prompt consideration to the problem of financing the cost of care in the general hospitals of the State:

(1) to provide more satisfactory care for the indigent and the medically indigent; and

(2) to provide a more progressive climate for education and professional growth, not only as it applies to the practicing physician and the student in medical school, but to the supporting disciplines essential in modern medical care.

USE THIS ENTRANCE

The doorway inscription on the Hotel Dieu, an old hospital in Paris, reads as follows:

Guerir quelquefois, soulanger souvent, consoler toujours.

Translation: To cure sometimes, to help often, to comfort always.

CHRISTMAS AND THE M.D.'S WIFE --

or Pay as You Mend

HARRIET DURHAM

I have survived another holiday season by sheer dint of will-power and some careful planning. Gifts to friends and family, yes. Gifts to doctors-who-have-served-us-during-the-year, no. This will come as a shock to the tradition-bound physician's wife, but I had reached a point of no return in sending another case of Scotch; a Madras jacket only his sixteen-year-old son would wear or an encyclopedia of birdwatching when his real hobby is skin-diving. Fifteen pounds of Oolong tea and twenty cheese trays convinced me something should be done, and it was not to get rid of five cheese trays.

Obtaining reprints of Dr. Spock's article on our archaic system of M.D.'s thanking M.D.'s, I sent a reprint with a suitable check to one physician suggesting that if he felt duty-bound *not* to cash the check, he might forward it to his favorite charity. This system had the obvious advantage of not having to maintain a list throughout the year for the final mad dash. Admittedly, it had the disadvantage that without exception, the check, the letter, and Dr. Spock were returned with friendly but firm letters. This obviously was *not* a working solution.

Remembering that utmost firmness of purpose must be uppermost, I did not falter. When one-shot care was needed (x-ray study, tetanus shot, cholera survey), I arrived with a reprint of the above-mentioned, a check and a firm statement that I would pay or go elsewhere. This was hardly a subtle approach and impressed no one. I had hoped the shock element might make its effort.

Last fall, I stumbled on a trial program that turned out to be the most effective. Choosing a selected list of physicians' wives whom I know well, I phoned and the conversation went like this: "Bethsheba, I am beginning to think about Christmas and as much as we have enjoyed exchanging gifts, I hoped we could eliminate some hustle and bustle this year by just saying thank you now for your husband's help to us and my husband's help to you and yours. The response was 100% enthusiastic and genuine. This pointed up the fact that this is really a problem of the wives who are the ones who must initiate and/or institute any change, the method being of their own choosing.

Long term traditions are difficult to topple but a dent in the armor may bring eventual change. There are those who prefer the status quo. I have no objection. But I prefer a pay-as-you-mend situation. Long term care (like the frantic allergist or long-suffering pediatrician) is more difficult to solve. (I'll divulge that secret next year.) Perhaps it is just as easy as mailing a check, not to the M.D., but straight to a charity in his name. This conscience-cleaver, he cannot tear up.

Mrs. Durham, an orthoptic technician, is the wife of Davis G. Durham, M. D., ophthalmologist and traveler. Together they have served on several medical missions including some on the hospital ship, *Hope*.

THE REAL TRUTH ABOUT GIRLS

In the best tradition of respecting no truths as too sacred to be subjected to scientific validation, the English have recently deflated another myth.[1] Girls are really *not* cleaner than boys. When the skin flora of 85 schoolboys was compared with the growth obtained from 63 schoolgirls, all age 11 to 16 years, there were significantly greater numbers of bacteria recovered from the girls than from the boys, no matter what the site of culture. Another triumph for truth! *1. Brit. J. Derm. 80:279, '68.*

THE DELAWARE AREA-WIDE COMMITTEE FOR THE REGIONAL MEDICAL PROGRAM

EDGAR HARE, JR.[1]

The Delaware Area-Wide Committee for the Regional Medical Program became a permanent operating entity of the Greater Delaware Valley Regional Medical Program at its first annual meeting on January 30, 1969. Having been recognized as the first of its kind in the Greater Delaware Valley Region, the Delaware Area-Wide Committee held its first meeting in June, 1968, established a temporary structure and proceeded to organize for permanent operation. This activity culminated in January, 1969, with the adoption of By-Laws; the election of permanent officers, executive and nominating committees; and the establishment of task forces for heart disease, cancer, stroke, and related diseases. The Delaware Area comprises the three counties of Delaware and most of Salem County, New Jersey. The purpose of the Area-Wide Committee is, in general terms, to assist in realizing the potentials of Regional Medical Programs.

The newly elected officers are:

	County
Chairman, John W. Alden, Jr., M.D.,	New Castle
Vice Chairman, Charles Young, M.D.,	Salem
Secretary, Mrs. Mary Cuyjet,	Kent
Treasurer, Frank L. Larsen,	Sussex

Other members of the Executive Committee are :

	County
Norman L. Cannon, M.D.	New Castle
Mrs. Arva Jackson	New Castle
Charles Allen, M.D.	Kent
Harry Camper	Kent
Joseph A. Elliott, M.D.	Sussex
Robert L. Snively	Sussex
Mrs. John S. Marara	Salem
Loring E. Sylvester, M.D.	Salem

The Nominating Committee, charged to report at the Area-Wide Committee's annual meeting in January, 1970, consists of:

	County
M. W. J. Abraham, Chairman	Kent
Mae D. Hightower	New Castle
Edward G. Benz	At Large
David Westover	Sussex
James L. Menges, M.D.	Salem

To explore needs, to develop cooperative relationships and to promote projects, task forces have been established in the disease areas which are the concern of Regional Medical Programs. Physicians and other concerned persons are urged to communicate with Task Force members and, if they wish to participate on a task force, to make these wishes known.

The Task Forces are:

Task Force on Heart Disease

Leonard P. Lang, M.D., *Chairman*

Robert B. Flinn, M.D.
M. W. J. Abraham
Charles Allen, M.D.
Alfred E. Bacon, Jr., M.D.
Mary K. Carl, Ph.D.
J. Allen Frear
James H. Gilliam
Lemuel C. McGee, M.D.
Robert L. Snively
John W. Talbott

Task Force on Cancer

Robert W. Frelick, M.D., *Chairman*

Joseph W. Abbiss, M.D.
John W. Alden, Jr., M.D.
Henry R. Cooper
Mrs. J. Edward Crosson
Carlo A. Cuccia, M.D.
Martin Gibbs, M.D.
Mrs. Elizabeth Goggin
John F. Hynes, M.D.
Mrs. Camille Jacobs

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[1] Mr. Hare is Delaware Area Liaison Officer for the Greater Valley Regional Medical Program, Suite 206 at 1401 Pennsylvania Avenue, Wilmington, Delaware.

Loring E. Sylvester, M.D.
Alexis Tarumianz
Leslie W. Whitney, M.D.

Task Force on Stroke

Dewey A. Nelson, M.D., *Chairman*
Allston J. Morris, M.D.
Joseph B. Ahlschier
Irwin G. Burton
Harry Camper
Elsie B. Chetkowska, R.N.
Mae D. Hightower
Mrs. Wagner D. Jackson
Frank L. Larsen
James L. Menges, M.D.
Lewis H. Talley

Task Force on Related Diseases

Harry E. Walkup, M.D., *Chairman*
G. Barrett Heckler, M.D.
Mrs. Roger Andersen
Mrs. Mary Cuyjet
Joseph A. Elliott, M.D.
Richard R. Griffith
Hon. Thomas Herlihy, Jr.
Guion Miller
Sister Mary St. Robert

Multi-Purpose Task Force

The formation of an additional Task Force is under consideration to deal with matters that cross disease lines, such as multi-phasic screening, etc.

* * *

SPECIAL REPORTS — HALL

Continued on Page 128

Accomplished at the symposium were: (1) the definition of brain death and the legality of accepting it, (2) the beginnings of medicine at disciplining itself before restrictive laws are instituted and, (3) some statement of the magnitude of the problems ahead. Disheartening were the apparent refusals of these leaders in medicine to take a stand on the many questions of medical ethics which are at present unsolved. Their lack of a firm stand is hampering research, increasing the cost of medicine, aiding and abetting poverty, and causing untold hardship and inconvenience.

And yet we must recognize the magnitude of the harassment which might be undergone by those few whose "faith" transcends reason and compassion. If there were some guidelines as to what the majority's wishes were on these matters, they could more confidently state their opinions. An anonymous poll of the Delaware physicians would be extremely helpful in informing medicine's leaders, religious leaders, and our elected officials of the trend of thinking on social problems related to medicine. Independent polls of patients and the electorate should follow.

Months ago, when I suggested in a letter to the editor of this Journal that we should poll ourselves and our patients on their views of the desirability of legalizing suicide, the letters and personal communications which I received on the subject were overwhelmingly in favor of this suggestion. It is likely that the dissenters tactfully remained quiet. I would now ask that they write to me, or by any other means of communication, let me have their opinions either pro or con. By such we may determine the advisability and subsequent value of proceeding with such a poll.

FAMOUS LINES

"You remember Lincoln's famous 'mot' about the impossibility of fooling *all* the people *all* the time? It does not hold good for the individual, who can fool himself to his heart's content all of the time."

"To study the phenomena of disease without books is to sail an unchartered sea, while to study books without patients is not to go to sea at all.

"As is your pathology, so is your practice." *William Osler, M.D.*

Editorials

MERGING AND EVOLUTION

Elsewhere in this issue of the Journal there is a report from the Department of Sociology and Anthropology at the University of Delaware entitled *The Reactions of Physicians to Merging of Wilmington Hospitals: An Initial Report.* There are several things in this title that should not be overlooked. The first is that this is an initial report and not a final report. The second is the careful choosing of the word *merging* rather than the past tense *merged.* Much of the data collected is of interest, but the interpretation is difficult if not impossible at this time.

Five or ten years from now when merger has been effectively completed, it may be easier to interpret or understand the results of this present initial report. On the other hand, it is not possible to adequately predict what the next poll will show. This poll does demonstrate, however, that during the process of merging there has been a significant number of physicians who do not have fixed opinions about the value of merging the three Wilmington hospitals and the formation of the Medical Center. It will be interesting to see what later studies will show, but it will be difficult to convince many people that a form can be designed that can erase the bias of what went on in the *good old days.*

To put things in their proper prospective: Before merging, many physicians had really very little idea of exactly what merger would do but were willing to vote in favor of it mainly because it looked as though it might improve the overall care of patients. Many thought that it would save money, which is highly unlikely, and others thought that if we truly merged and had one hospital, it would be easier for them to take care of their patients than if they were spread out in three hospitals.

Now in the midst of the merging process, most physicians are still in three hospitals; some have just been uprooted from one division and moved to another and have not had time to readjust to their new environment. Prices have escalated unbelievably, but this is, for the most part, related to increase in salaries and is no different at the Wilmington Medical Center than elsewhere. Nevertheless, it has occurred during the merging process. Finally merger began almost simultaneously with the new medicaid-medicare legislation which has unquestionably increased the demands for beds so that beds are now more difficult to obtain in many cases than prior to medicaid-medicare legislation and prior to the beginning of merger.

Once one is fully aware of the events that are going on at the time of this survey, it becomes more difficult to attempt to evaluate the results. Very wisely, the authors of this work have been careful not to make too many conclusions and to refrain as much as possible from speculation on the causes for the reaction that physicians have had as determined by this poll. It will be very interesting to wait for the results of another poll taken, hopefully, after merger has been completed or at least is in a stable state for a long-enough period of time for opinions to become more firm. If the Medical Center proceeds in the near future to move under one roof, the timing of the next poll should wait until then. On the other hand, if the Medical Center puts off the one-roof concept for 10 or 15 years, it will be difficult to decide when would be the appropriate time to do the next study.

Although public opinion polls have been important in the past, it may well be that in the future pollsters may have to find some more concrete and objective measurements for progress or the lack of it. To design a poll within the next few years that will correctly measure the effects of merger, one must first find out how to differentiate the effects of merger from (a) the general economic inflation that is taking place, (b) the social evolution that is occurring, (c) the impact of medical legislation, (d) the impact of medical school affiliation and, (e) the anticipated evolution in the science of delivering health care that is anticipated as automation and bioscience continue to change medical concepts.

PITFALLS IN THE DIAGNOSIS OF PKU

Since it has come to my attention that at least one infant in Delaware was placed on a Lofenalac[1] formula solely on the basis of two positive Guthrie Screening Tests for phenylketonuria, I feel discussion of the problems related to the diagnosis of phenylketonuria in the newborn period is indicated. One can say with certainty that the Guthrie Test is not diagnostic of phenylketonuria, and it is now certain that all babies presenting with the symptom of hyperphenylalaninemia do not have phenylketonuria.

The Lofenalac formula, although very valuable in preventing mental retardation in those infants and children with true phenylketonuria, may be lethal if prescribed for an infant who does not have the disease.

The Guthrie Test which has made it possible to detect phenylketonuria at a very early age has also brought to light during its use in the past several years several other conditions in which hyperphenylalaninemia is present. Some of these conditions are:

1. Phenylalaninemia associated with tyrosinemia. In a considerable number of premature and low birthweight infants, tyrosinemia may persist for a number of weeks due to slow maturation of enzyme systems. Associated may be phenylalaninemia, but the blood level is usually not terribly high, being less than 10 mg per 100 ml as a rule. (Normal levels of serum phenylalanine and tyrosine are 1 to 3 mg per 100 ml.) The serum phenylalanine level may however remain somewhat elevated until the tyrosine level is reduced. It has been estimated by some authorities that 90% of the infants reported as having positive Guthrie Tests are infants of this type. These infants require no treatment other than the prescription of additional ascorbic acid in their diet.

2. Phenylalaninemia associated with a defect in phenylalanine transminase activity: In this disorder although the phenylalanine blood level may be rather high, phenylketones are not found in the urine. This defect does not require the prescription of Lofenalac, for the blood level of phenylalanine may be fairly well controlled by use of a low-protein formula such as Similac[2] or Enfamil.[3] Even though these infants may show persistence of a somewhat elevated phenylalanine blood level, growth and development will proceed normally without Lofenalac.

3. Transient phenylalaninemia due to a delay in development of sufficient phenylalanine hydroxylese activity: This disorder is uncommon but may persist for weeks or months in some infants and at times necessitates the use of a Lofenalac diet for a short period of time.

4. Persistent phenylalaninemia without phenylketonuria: This syndrome is probably due to a genetic defect characterized by diminished amounts of phenylalanine hydroxylese activity. As a consequence, there may be several in a family who have an elevated serum phenylalanine level throughout life but the level usually is not high, being 10 mg per 100 ml or less. This disorder is considered familial, is harmless, and doesn't require any treatment.

It has been estimated by various observers that between 15 and 30 percent of infants who present with fairly persistent phenylalaninemia in early infancy do not have phenylketonuria.

In an effort to limit the Lofenalac formula to those infants who require treatment, the following routine is suggested when the neonatal Guthrie Test is reported "positive":

1. Repeat the Guthrie Test at two weeks of age. If it still suggests an elevated serum phenylalanine level, further investigation is indicated.

2. Serum phenylalanine and tyrosine levels should be obtained on a single blood specimen.* If the serum level of phenylalanine is over 30 mg per 100 ml and the tyrosine level is normal, a presumptive diagnosis of phenylketonuria may be made. However, if serum tyrosine level is elevated as well as phenylalanine, the infant should be given 50 to 100 mg of ascorbic acid daily and the serum levels of phenylalanine and tyrosine reassessed at weekly intervals. As a rule, both phenylalanine and tyrosine will gradually fall to normal levels.

3. The urine should be examined repeatedly for phenylketones by use of ferric chloride or the Phenistix[4] test. A solution of 10% ferric chloride in 2 N hydrochloric acid may be dropped on the urine-moistened diaper or the Phenistix tape may be applied. If a blue-green color develops on the diaper with the ferric chloride solution or the Phenistix test is positive as indicated by comparison of the tape with the color chart provided by the manufacturer, phenylketones are present in the urine and the diagnosis of phenylketonuria is established, providing this finding is associated with a markedly elevated phenylalanine level in the infant's serum.

4. Should the serum phenylalanine level remain under 30 mg per 100 ml but still well above normal levels and phenylketones are not detected in the urine, a low-protein formula such as Similac or Enfamil should be provided the infant and the level of phenylalanine in the blood should be re-examined in one week.

5. If the serum phenylalanine continues above 20 mg per 100 ml with a normal serum tyrosine level with or without ketone bodies in the urine at six weeks of age, dietary treatment with Lofenalac is recommended. It is imperative, however, that the serum level of phenylalanine be monitored every week or two. When phenylketones have not been found in the urine, the infant should be challenged with a normal diet at 3 months and 6 months of age to be sure a definite diagnosis has been established as the baby could have one of the transient forms of phenylalaninemia. On a normal diet the infant with classical phenylketonuria will show a serum level of phenylalanine above 20 mg per 100 ml within 5 to 7 days and usually phenylketones will appear in the urine shortly thereafter.

The above program certainly is not perfect but avoids the serious pitfall of placing a normal infant at risk through overuse of Lofenalac. Unfortunately more sophisticated examinations that would be absolutely diagnostic are not practical at the present time. Phenylalanine tolerance tests have not proven to be infallible, and liver biopsy for determination of the level of phenylalanine hydroxylese activity is much too formidable a procedure for routine use.

H.H.S.

REFERENCES
1. Lofenalac, low phenylalanine food, Mead Johnson.
2. Similac, newborn formula, Ross Laboratories.
3. Enfamil, newborn formula, Mead Johnson.
4. Phenistix, paper resgent strip for detection of phenylketones, Ames.

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*These studies may be obtained at the Delaware Division, Wilmington Medical Center.

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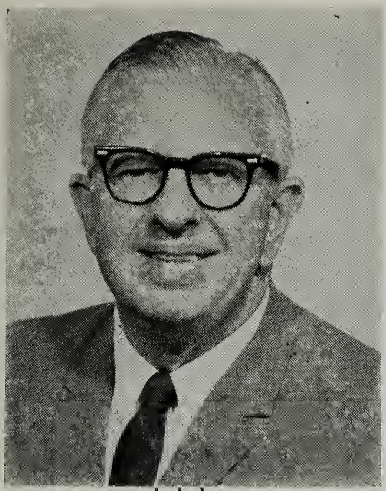
FISH-OLOGY: A Tuna Fish Story

Tuna must make a choice — sink or swim. Being heavier than salt water, a study discloses, they must stay in perpetual motion. If they should stop swimming, tuna will drift tail-first toward the bottom where they could not survive the lack of oxygen. . .

The larger tuna have gas bladders that somewhat decrease their negative buoyancy in water . . . but these bladders are lacking in smaller tuna, which must swim faster to keep from sinking.

The bladderless "skipjack" can make vertical ascents to the surface that would burst the bladders of the larger tuna. And, since the bladderless fish can better pursue small fish fleeing toward the surface, Dr. Magnuson of the University of Wisconsin suggests that they may have lost their bladders through natural selection. *Dateline in Science, April 19, 1968.*



President's Page

THE MEDICAL SCHOOL CONTROVERSY

In a recent edition of the *Morning News* an editorial appeared entitled *Postpone a School of Medicine?* This editorial took your president to task for his desire that a school of medicine be established in our state as early as possible. The editorial started by stating that "physicians and others must be disappointed with the latest report (Truslow Report) on medical education." In my article in our Delaware Journal, I asked for immediate action for the founding of a school. We are all agreed, as is Dr. Truslow, that eventually a school of medicine and a medical center for allied paramedical training for the state are essential. A committee has been functioning for ten years in an attempt to start a school of medicine. This editorial report then ends by stating that "The Truslow Report does make an eventual University of Delaware Medical School seem closer to realization." Surely there is no consistency in the editorial opinion that there is a cleavage among the medical profession as to our need. Obviously the funds for a medical school are not now available. This must not deter us from a desire to establish a school of medicine as soon as possible. Until that time, we are agreed that the work of Dr. Truslow has been of great value in attempting to establish continuing medical education to meet the present crisis of physician shortage in our state, and to use the facilities that will be provided by our own Wilmington Medical Center.

We undoubtedly will have a school of medicine. Let us follow the Truslow Report until it is feasible to establish a school of medicine as an integral part of the University of Delaware and the Wilmington Medical Center.

Charles M. Moyer

Letters to the Editor

To the Editor:

In 1967 the three County Medical Societies and also the Medical Society of Delaware passed resolutions favoring a change in the Criminal Code of the State as it pertains to therapeutic abortion. The component County Societies and the State Society supported changes in the current law consistent with modern medical thinking and modern moral philosophy.

A bill to this effect was presented to the House of Representatives of the State of Delaware in 1968. This bill was referred to the Judiciary Committee for consideration. The bill was not reported out of Committee, even those portions referring to incest and rape.

Recently the Public Laws Committee of the State Medical Society sent out a questionnaire concerning attitudes on abortion. The 376 responses received will be analyzed for you in detail at a future time. All but 52 of the total responding felt the present law should be liberalized.

The legislators of the State will soon have to decide whether our abortion laws should be changed (the law now permits abortion only to save the mother's life), and also to decide whether abortion should be regulated within the Criminal Code or mentioned in the Medical Practice Act, or be omitted completely from any legislated restriction. Therefore it is time for Delaware's physicians to make known to their own legislators their views regarding abortion.

It should be remembered that under any liberalized law, no pregnant woman would be compelled to undergo an abortion, but neither would any woman be denied the privilege of an indicated therapeutic abortion.

Recently Cardinal Cushing of Massachusetts stated "Catholics do not need the support of civil law to be faithful to their own religious convictions, and they do not seek to impose, by law, their moral views on other members of society." It is thus evident that a physician's personal views of morality need not influence his opinions regarding measures available to others. Indeed, of the 59 responses from questionnaires received from Catholic physicians, half reported they feel all physicians should be active in trying to change the present abortion law—a markedly restrictive one — which actually encourages illegal and dangerous abortions.

Andrew M. Gehret, M.D.

To the Editor:

With ever-failing service and ever-rising costs, the management of the Telephone Answering Service informed me of the reason for the poor quality of answering service physicians in Wilmington now receive. According to the management of the Telephone Answering Service, the problem lies at the feet of the federal government who insist upon keeping the national unemployment rate in the region of three per cent. The management lamented the fact that the unemployment rate was not the good old nine per cent for in those days, the quality of operators and technical employees was much better than in today's three per cent unemployment status.

Perhaps the answer to the entire problem of the Telephone Answering Service can be found. We need only invoke a general depression with an unemployment rate in the neighborhood of 15 per cent to afford good telephone answering service. Of course we will not have any money with which to pay for the service, but we will get better service.

Carl I. Glassman, M.D.

In Brief

Male Cosmetic Surgery

Health clubs and the growth of the male cosmetic industries show evidence of man's increasing awareness of his appearance, warns Dr. Lester M. Cramer, Professor of Plastic Surgery, Temple University. Because of *lingering cultural block* a man "may feel guilty to present himself for such surgery and instead turn to secretive maneuvering and the employment of less than qualified doctors," he explained. The male patient is a vulnerable subject since he may desire the surgery but believes it to be unattainable through usual medical channels. The modern, reputable physicians and surgeons, however, recognize these problems and are ready to help patients find proper solutions.

VPVN Program

To date, 570 physicians have departed from the United States to serve 60-day tours under the Volunteer Physicians for Viet Nam program. It is gratifying to know that a sufficient number of dedicated American physicians have volunteered their services to maintain an average of 30 physicians in Viet Nam under this program. Two hundred volunteer physicians are urgently needed to maintain the VPVN program at its current level throughout 1969. The greatest need is for general practitioners, internists, pediatricians, preventive medicine specialists, general surgeons, orthopedic surgeons and ophthalmologists. A limited number of volunteers from other specialty groups (anesthesiology, dermatology, obstetrics/gynecology, otorhinolaryngology, clinical pathology, physical medicine, radiology and urology) can be effectively utilized.

In The News

- G. Dean MacEwen, M.D., has been appointed to the National Executive Committee of the Academy of Orthopaedic Surgeons.
- Walter M. Bailey, M.D., gave a paper on March 24, 1969, entitled *Long Term Follow-ups in the Use of the Fred Thompson Prosthesis*, at a meeting of the Bone and Joint Surgeons held in Yucatan, Mexico.
- John F. Hynes, M.D., presented a paper on *Radiation Therapy of Hodgkin's Disease with Orthovoltage* at a Symposium on *Cancer* sponsored by the Academy of Medicine of New Jersey on February 19, 1969. The paper will be published in the Bulletin of the Academy of Medicine of New Jersey and the American Journal of Roentgenology.
- George J. Boines, M.D., was on the program of the 23rd Annual Postgraduate Clinic of the Michigan Academy of General Practice held March 12-13 in Detroit. Dr. Boines read a paper and had a scientific exhibit on *The Management of Multiple Sclerosis* showing his results in the treatment of 450 patients. A live clinic in the *Instruction in Depth* program was held demonstrating the total management of multiple sclerosis.

Speakers on "Ask The Doctor"

Speakers for May, 1969, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: May 6, Oscar N. Stern, M.D., *Menopause*; May 13, Emerson Y. Gledhill, M.D., *Cancer*; May 20, Jerome Kay, M.D., *Depression*, May 27, Marvin H. Dorph, M.D., *The Telephone Answering Service.*

Seaford Seminars

The Seaford Seminars of the Medical Society of Delaware will be held at the Nanticoke Memorial Hospital from noon to 1 p.m. on:
May 13, 1969, *Newer Techniques for Office Evaluation of Peripheral Vascular Problems*, Richard Lennihan, Jr., M.D.
May 20, 1969, *Thyroiditis*, R. Walter Powell, M.D.

Heart Association Prize

The American Heart Association has established a $1,500 prize to be awarded annually for independent studies in the cardiovascular field. This year's winner will be invited to present his research results at a meeting of the Council on Basic Science during the American Heart Association's 1969 Scientific Sessions, in Memorial Auditorium, Dallas, Texas, Nov. 13-16. Deadline: June 1, 1969. Application forms may be obtained from the Delaware Heart Association, Suite 60, Independence Mall, Wilmington, Del. 19803.

Nursing School Admissions

Primarily responsible for the sizable gains in admissions, graduations and enrollments in schools of nursing is the rapid expansion of associate degree nursing programs in junior and community colleges. The National League for Nursing assists all nursing schools in improving their programs.

New Journal

Ophthalmologists and members of allied disciplines are invited to submit manuscripts on theoretical, experimental, or clinical subjects as well as reports of regional or national society meetings to the newly founded Annals of Ophthalmology. Mail manuscripts and inquiries to Editorial Correspondent, Annals of Ophthalmology, 30 N. Michigan Ave., Chicago, Ill., 60602.

Services Catalog

Smith Kline and French Laboratories has just released its *SK&F Services Catalog, 69/70*. Free copies may be had by writing: Services Department E-10, SK & F Laboratories, 1500 Spring Garden Street, Phila., Pa. 19101.

Weigh Carefully

Excess weight is today a social liability. This is fundamentally a medical-psychological problem. Many of the sufferers unaware of this seek an easy way out of their difficulty.

Recent activity of the FDA has shown a wide-spread abuse of the use of toxic drugs in weight reduction programs. This has been lethal in documented cases. The use of digitalis and thyroid hormone has no place in the therapy of simple obesity. Diuretics cause water loss but not fat loss. Thyroid hormone administration may increase metabolism but this is offset by increased appetite. The use of this drug in an individual with normal thyroid function may produce undesirable, secondary endocrine reactions, disturbing the regulatory function of the pituitary, thereby causing a decrease and cessation of thyroid function. Myxedema on top of obesity compounds the felony.

Anorexiants, mainly the amphetamines, may be justified only on a short-term basis. They may suppress appetite and elevate mood but if long continued become an habituation.

At the present state of our knowledge there is no pharmacologic short cut in the treatment of obesity. We know this and we should see that our patients know this. But this, in itself, is not enough. We should seek every opportunity to let the general public know also.

(*New York State Journal of Medicine*, Nov. 15, 1968.)

CLINICAL NOTICES AND MEETINGS

Flying Physicians Meet

The 15th Annual Meeting of the Flying Physicians Association will be held at the Lake Placid Club, Essex County, New York, June 15-20, 1969.

Chest Physicians Courses

The Council on Postgraduate Medical Education of the American College of Chest Physicians announces the following continuing education courses:

April 24-26, *Pulmonary Care in Children.* For information, contact: Charles L. Swarts, M.D., ACCP, 112 E. Chestnut St., Chicago, Ill., 60611.

Sept. 11-13, *Myocardial Infarction.* For information, contact Fouad A. Bashour, M.D., ACCP, 112 E. Chestnut St., Chicago, Ill., 60611.

N. J. Annual Meeting

Members of the Delaware State Medical Society are invited to attend the 203rd Annual Meeting of the Medical Society of New Jersey, in Haddon Hall, Atlantic City, May 17-21, 1969. For details, contact: The Medical Society of New Jersey, P.O. Box 904, Trenton, N. J. 03605.

International Traffic Medicine

Three International Meetings on Traffic Medicine, Drug Abuse and Poison Control will be held May 29-June 4, 1969, in New York City. For information, write: Secretariat, International Assn. for Accident and Traffic Medicine, 520 First Ave., New York City, N. Y. 10016.

Three Conferences

Three conferences to be held at the Americana Hotel, New York City, are: *The Third Triennial Congress of the International Association for Accident and Traffic Medicine*, May 29-June 1; *The International Conference on Drug Abuse*, June 2, 1969; and *The International Conference on Poison Control*, June 3-4, 1969. For details, write: International Association for Accident and Traffic Medicine, 520 First Ave., New York, N. Y. 10016.

Cancer Symposium

A symposium on *Treatment of Cancer of the Intestinal Tract* will be held at Jefferson Medical College, Philadelphia, May 14-16. There is no fee. For information, write: John H. Killough, M.D., Associate Dean, Jefferson Medical College, Phila., Pa., 19107.

Osteopathic Seminar

The Annual Educational Seminar sponsored by the Delaware State Osteopathic Medical Society will be held May 3, 1969, at the Delaware Academy of Medicine, Lovering Avenue at Union Street, Wilmington.

Anxiety Course

A course entitled *Anxiety and Depression: Modern Interpretations* sponsored jointly by the Mound Park Hospital Foundation and the College of Medicine of the University of Florida, will be given May 1-3, 1969, at the Tides Hotel and Bath Club, Redington Beach, Florida. This course is acceptable for 18 credit hours by the AAGP. The $50.00 fee includes luncheons on May 1 and 2. For information, write: Postgraduate Medical Education, Mound Park Hospital, Inc., 701 6th St., South, St. Petersburg, Fla., 33701.

Adolescent Medicine Course

The American College of Physicians will present a course in *Adolescent Medicine* at the University of Washington Child Development and Mental Retardation Center in Seattle, May 19-22, 1969. Fees: Members, $60; nonmembers, $100. For information, write Edward C. Rosenow, Jr., M.D., Exec. Dir., ACP, 4200 Pine St., Phila., Pa. 19104.

Chronic Myelogenous Leukemia Study

The cooperation of physicians is requested in a continuing study of chronic myelogenous leukemia being conducted by the National Cancer Institute, N.I.H., Bethesda, Maryland. Patients of all ages with high white blood cell counts and platelet counts are needed for studies of newer chemotherapeutic agents and as a source of white cells and platelets for *in vitro* and *in vivo* study. Interested physicians can write: George P. Canellos, M.D., Clinical Center, Room 12N-236, NIH, Bethesda, Maryland 20014, or call 301-496-4916.

The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

Cephalothin

Ten patients with bacterial endocarditis were treated with cephalothin. Nine (Streptococcus viridans, four; microaerophilic streptococcus, two; anaerobic streptococcus, one; and Staphylococcus aureus, two) appeared cured when studied six months to four years after therapy ended. The tenth (Staph. albus) had negative blood cultures at the time of death. In seven, bacterial strains were available for testing, and growth was inhibited by a 30-ug cephalothin disk. In two other patients with enterococcal endocarditis, no serum bactericidal activity was demonstrated *in vitro* after administration of cephalothin in combination with streptomycin.

Side effects of cephalothin included mild rashes, fever and superficial thrombophlebitis. An excessive blood level (51 ug per milliliter) developed in a patient who had a serum creatinine of 2.2 mg per 100 ml. In another, serum creatinine rose from 1.7 to 6.6 mg per 100 ml after 8 gm daily for 23 days.

Cephalothin appears to be an excellent substitute for penicillin in treating bacterial endocarditis due to Staph. Aureus of Streptococcus other than enterococcus in patients for whom penicillin G is contraindicated.

Rahal, J. J.; Myers, B. R.; & Weinstein L.: *New Eng. Jour. of Med.*, Vol. 279, No. 24. pg. 1305, Dec., 1968.

Aminophylline, Oral vs. Rectal Administration

The widespread preference for rectal rather than oral administration of aminophylline was tested by comparisons made in 13 adults.

Throughout four hours of testing, mean theophylline concentrations in the blood were higher with oral administration after fasting than with rectal administration by suppository or retention enema. In every patient, oral administration gave the higher blood theophylline concentration. After 500 mg of aminophylline in uncoated tablets taken orally, a therapeutic blood concentration developed in every patient.

Unless concentrations of theophylline in the blood are analyzed during use in each patient and the dose is adjusted accordingly, physicians must continue to use a trial and error approach in each patient to try to determine an effective, tolerable maintenance dose of aminophylline.

(Lilehei, J. P., Univ. of Minnesota Medical School, Minneapolis,) J. Am. Med. Assoc. 205:530-533 (Aug. 12) 1968.

Kanamycin • Edecrin
Ototoxicity

The dose-related ototoxicity of such antibiotics as kanamycin is widely appreciated. What seems to be frequently overlooked is the relationship to renal function. The authors continue to see patients with ototoxic reactions to kanamycin and invariably they have been given *subtoxic* doses of the antibiotic but in the presence of poor renal function. Edecrin *(ethacrynic acid-MS&D)*, the recently introduced diuretic, may also be ototoxic under similar circumstances. One patient with impaired renal and hepatic function experienced significant hearing loss 20 minutes after receiving a single 50 mg dose of Edecrin. Audiograms taken two days later confirmed the presence of moderate bilateral sensorineural hearing loss. The patient subsequently died and at autopsy the temporal bones showed moderate outer hair cell loss in both cochleas. The ototoxicity of Edecrin was subsequently demonstrated in animals. Edecrin, like kanamycin, may be a potentially severe ototoxic drug in patients with impaired renal function. Except in life-threatening situations, it is perhaps unwise to employ such drugs unless renal function is demonstrably normal.

Matz, G. J. & Naunton, R. F. (Broods Air Force Base, Tex.), JAMA 206:2119 (Nov.) 1968.

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CLIMATOLOGY AND MEDICINE

Article I

The history of medicine is of abiding interest — witness the numerous articles and illustrations appearing in lay, professional and scientific publications. The possible relationship between climatic changes and the progress of medical knowledge has recently been discussed.[1] Certain aspects of this discussion will be presented in a series of short articles.

Lewis B. Flinn M.D.

The progress of medicine has been closely entwined with the growth of civilization. Man had reached practically the same level of development the world over, 30,000 to 35,000 years ago — in Europe, Africa, Asia, Central and perhaps in South America.

However, as soon as agriculture began to develop, people congregated in fertile areas where the climate was suitable. This early development was confined largely to the Fertile Crescent (Figure 1), an arc extending from the Persian Gulf westward and then southward including Syria, Lebanon, Israel, and Egypt.[2] It included such ancient places as Thebes, Memphis, Jericho, Tyre, Sidon, Cyprus, Ugarit, Nineveh and Babylon. The wintertime winds in the Mediterranean blow from west to east. Laden with moisture, they strike the high mountains just north of the Fertile Crescent losing their loads of snow and rain and thus feeding the Tigris and Euphrates. Similarly the sea of Galilee receives water from Mt. Hermon which towers high above Palestine. In the summer, there is little or no rain. About 6000 B.C., the Nomads learned to grow grain. Settlements such as those listed above began to develop in Mesopotamia. Irrigation was used and the Nile in Egypt with its annual flooding permitted agriculture to develop in the alluvial soil. Three civilizations arose: Egypt, Mesopotamia and Jericho. Recent evidence dates the first of some seventeen successive cities at Jericho to be about 8000 years ago, earlier than Egypt or Mesopotamia.

It has become more and more evident that through history climatic changes and storms were stimulating to peoples. Hippocrates pointed this out in considerable detail. When there have been periods of increased warmth and paucity of rainfall, little advance is made in the progress of civilization. Productive activity occurs when it is colder and stormy and changeable, the type of climate character-

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Dr. Flinn is Honorary Physician, Department of Medicine, Wilmington Medical Center, Wilmington, Delaware.

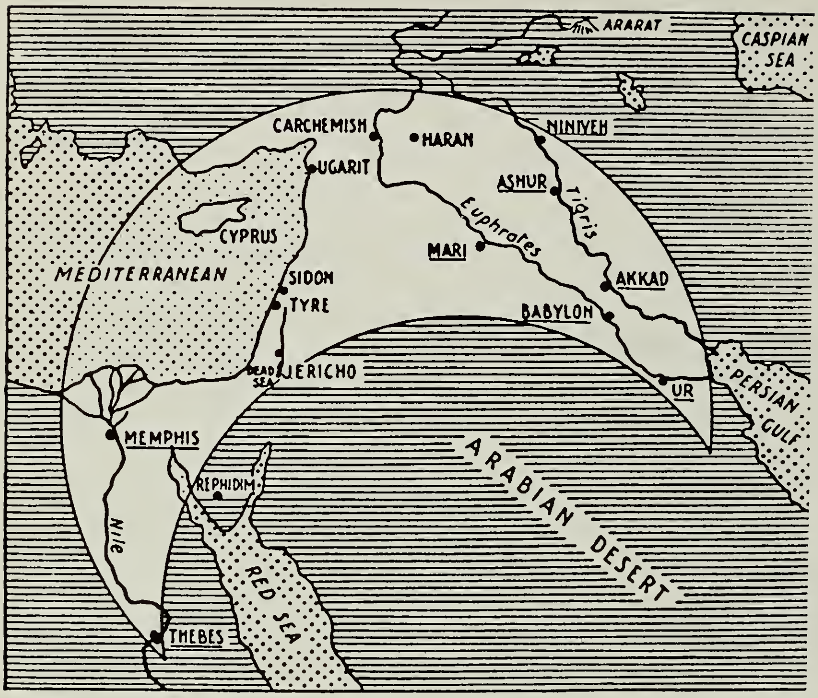

Figure 1
The Fertile Crescent, an arc extending from the Persian Gulf westward and then southward including Syria, Lebanon, Israel, and Egypt.[2]

istic of the temperate zone. It has been fairly well shown, though not perhaps entirely proven, that major climatic changes or trends are world-wide. Rings of redwood trees in California correspond with information from the dredged material from the Caspian Sea and lakes in northern Europe and Sweden. The latter evidence is from the varves, annual layers of silt and clay deposited on the bottom of lakes and ponds. The thickness of these varves parallels the thickness of the Sequoia tree rings. The greater the rainfall, the thicker are the rings, which date back 3000-4000 years. Furthermore, the evidence of the amount of caravan travel in Syria varies in a parallel manner. The amount of the Nile floods is another measuring stick as well as the amount of layers of silt found in the peat bogs of Ireland.

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1. Flinn, L. B.: Reflections on the Relationship of Climatology to Medicine, Trans. Amer. Clinical and Climatological Assoc. 79:146-156, 1967.
2. Keller, Werner: The Bible as History, Wm. Morrow & Co., New York, 1960.

OUR FIRST MILLION YEARS

Man is at least a million years old and beginning to look it. The changes have been so gradual — just a little every few thousand years — that man is hardly aware of how much he has deteriorated. Once his teeth were so strong that he could gnaw a bone . . . Never in his wildest dreams did he imagine what it would be like to have a tooth drilled or to try to keep an upper plate from slipping . . .

His good health was also furthered by a sensible diet, consisting of never having quite enough to eat. . . It did not occur to him to worry about salt, sugar or cholesterol.

Man at first wore no shoes. He went barefoot everywhere, and not because he belonged to some protest group. Since he wore no shoes, he had no corns, ingrown toenails, athlete's foot or need for a podiatrist. Thanks to calluses that grew thicker instead of thinner, he never required resoling. . .

Man was, in short, in fine physical condition. *(The Depopulation Explosion,* Richard Armour, Playboy, Sept. 6, '68.)

MEGALOBLASTIC ANEMIA DURING ANTICONVULSANT THERAPY

• The pathogenesis of production of anemia is discussed and folic acid seems to play a dominant role. It is suggested that periodic blood counts are advisable in all patients receiving anticonvulsants. Diagnosis is usually made by history and exclusion of other causes for megaloblastic anemia.

Ellis M. Kendle, M.D.

History

Although diphenylhydantoin (Dilantin) has been extensively used as an anticonvulsant since 1938, and phenobarbital since 1912, it was not until 1952 that Mannerheimer described leukopenia and megaloblastic anemia in an epileptic patient being treated with Dilantin. In this case, the administration of B_{12} resulted in a gradual return to normal of the hematological picture. Badenoch in 1954[1] was the first to suggest a casual relationship between megaloblastic anemia and anticonvulsant therapy. In addition to Dilantin and phenobarbital, primidone (Mysoline) has now been added to the list of such drugs which have produced megaloblastic anemia either singly or in various combinations.

Up to 1967, there were less than 100 such cases reported. Most of these were in the British literature with only six cases up to 1963 reported in the American literature. The lapse of 14 years between the introduction of Dilantin and the first reported case of megalobastic anemia is very curious and a survey comprising a combined total of 534 patients treated with these drugs (Dilantin, phenobarital and Mysoline), revealed only four definite cases of megaloblastic anemia in which other possible causes were eliminated,[2] leading to the assumption that some cases may have been unidentified, or mislabled as pernicious anemia or idiopathic megaloblastic anemia.

Diagnosis

The diagnosis is usually made by history and exclusion of other causes for megaloblastic anemia. The typical patient is an epileptic receiving combined anticonvulsant therapy or prolonged administration of a single agent. His diet is usually inadequate. It is unusual to find either achlorhydria or intestinal malabsorption.

The onset is insidious and the symptoms and signs are those of progressive anemia. Seventy-eight percent of the cases reported have been women.[2] Eighty percent were under age 50; the youngest was a 17-year-old female.[3] Splenomegaly is very rare. Purpura may be present if there is an accompanying thrombocytopenia. Positive direct Coomb's test was reported in two cases by Ryan and Forshaw.[4] Macrocytosis without anemia has been reported in one-third of a group of patients receiving Dilantin; this finding was an index of a disturbance in nucleoprotein metabolism since it was corrected by giving folic acid.[5] Other causes of macrocytic anemia that should be ruled out include:

Dr. Kendle is Staff Physician, Delaware State Hospital, New Castle, and Assistant in Medicine, Wilmington Medical Center, Wilmington, Delaware.

pernicious anemia, primary malabsorptive disease, liver disease, *diphyllobothrium latum* (fish tapeworm) infestation, pregnancy, or a history of surgery that may have given rise to blind loops.

There has been dietary inadequacy in many of the cases, most of whom were debilitated epileptics and mental defectives. Unfortunately, in most patients the dietary history was not carefully recorded. In those where diet has been well analyzed, it seems that a suboptimal intake of folic acid may be a predisposing factor. Unlike the folic acid deficiency associated with alcoholism, the deficiency is not corrected by a hospital diet alone.

Role of Diet and Ascorbic Acid

Ascorbic acid saturation has often been abnormal without signs of scurvy. Lesions of the mouth and gums are frequent in these patients and the dietary sources of ascorbic acid are virtually the same as for folic acid. In cases with associated scurvy, the anemia did not respond to ascorbic acid alone, but when folic acid was given alone, there was no valid treatment failure. Flexner and Hartman[2] cited the works of others and found out that 17 patients responded to folic acid therapy alone, 14 to B_{12} alone and five to combined therapy with these agents. Twelve patients failed to respond to B_{12} therapy but remitted promptly with folic acid. The role of ascorbic acid in megaloblastic anemia is not clear but it is thought that ascorbic acid may be necessary for the conversion of folic acid to folinic acid.

Mechanism of Anemia

The megaloblastic anemia of these patients resembles that seen in pregnancy and with malabsorption because both have normal B_{12} serum levels and both respond to folic acid. Although all are due to folic acid deficiency, the pathogenesis is very different. In the pregnant or malabsorption patient, a small test dose of folic acid is cleared very rapidly from plasma suggesting depleted tissue stores. In patients receiving anticonvulsants, the rate of clearance is normal. Thus, the anemia is not due to a deficiency of folic acid but more probably to interference by the anticonvulsant drug with the action of available folic acid. Proof of this is that withdrawal of the drug usually is followed by improvement of the anemia; with discontinuation of folic acid and reintroduction of anticonvulsants, to the megaloblastic changes seen in leukemias treated with folic acid antagonists and the relief of both anemias with folic acid probably is by the same mechanism.

Why do the anticonvulsant drugs antagonize folic acid? Girwood and Lennan[7] suggest that it is due to the structural similarity of their pyrimidine and hydantoin rings to the pterodyl portion of folic acid. But primidone has no influence on microbiological assays for folic acid and if Dilantin is added to culture media containing strepfecalis and varying concentrations of folic acid, there is no inhibition of growth.[8]

It is of interest that phenobarbital actually enhances the growth producing effect of small amounts of B_{12} in culture of lactobacillus leichmannii.[9] If it were simply a matter of interference with metabolism of folic acid, one would expect a much higher incidence of this disorder among epileptics.

Regardless of the etiology, if we look at the cases in which folic acid alone was used for treatment, it plays an important role. No treatment failure has been reported with folic acid. Some cases have been followed by a fall in urinary formiminoglutamic acid excretion after ingestion of 500 mcg of the vitamin daily.[2]

In fact, the wide spread use of anticonvulsants and the rarity of associated megaloblastic anemia makes most theories untenable. Could it be a genetic association between cerebral dysrythmia and faulty hematopoieses? This is unlikely since the anemia has occurred in patients treated for acquired epilepsy after trauma or neurosurgery for tumor.[10] Most likely, the anticonvulsants interfere with dietary folic acid or act as conjugase inhibitors.[8,11] This effect combined with a marginal diet, may be instrumental in the production of the megaloblastic anemia associated with anticonvulsant therapy. Dahlke and Mertens - Roesler[12] have demonstrated a convincing hematologic response to ingested conjugase in the form of chick pancreas despite prior demonstration of conjugase activity in the patients' intestinal secretions.

Recently, Meynell[13] has also found low serum folic acid, vitamin B_{12}, iron and ascorbic acid levels in some patients suffering from megaloblastic anemia on anticonvulsant therapy. He therefore suggests the probability of impaired absorption as obvious. Reynolds, Milner, Matthews and Chanarin[14] theorize that folic acid is required for the synthesis of RNA which has an essential role in protein synthesis; there is particularly high protein turnover in brain, probably related to the high energy utilization of neurones and to the synthesis of transmitter substances.

Summary

Recognition of megaloblastic anemia during anticonvulsant therapy is important. It is advisable to perform periodic blood counts in all patients receiving anticonvulsants. Whether or not to give maintenance doses of folic acid to all patients is an open question. The possible mechanisms for the production of megaloblastic anemia in patients receiving anticonvulsant drugs has been discussed. In each of them, folic acid plays a dominant role in pathogenesis and possibly also ascorbic acid in view of the fact that the dietary sources of both are virtually identical.

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UNDERSTANDING TOUCHED WITH SYMPATHY

The future of a profession depends upon the dynamism and excellence of those who practice it. To be content with a general air of well-seasoned mediocrity or to refuse to budge from the rigid and traditional customs of the past without regard for other circumstances are both sterile and, in the long run, fatal. . .

Lord Horder once said: "Successful Medicine is understanding touched with sympathy." And so it is that the real Medicine stands for the things of the spirit; it shares this mission with religion. It acts on the assumption that the individual is important, and that in the eye of eternity, all are one and the same. It believes in consideration and in doing its best for all, "even unto the least of these." It knows that naked we came into this world and naked we shall go out of it. It is kept humble and free from self-seeking by the memory of birth and the expectation of death, and by the knowledge of the fundamental loneliness of man on this earth. Medicine, under the grace of God, is one of the forces which has served to separate man from the brute. We must continue to practice this medicine and respect it through the darkness and uncertainties of today. *(Earle P. Scarlett, M.B., Arch. Int. Med., Jan. 1969)*

GALLSTONE ILEUS — A PITFALL FOR THE SURGEON

• In this disease of the elderly, a high index of suspicion is needed to make a correct diagnosis at the correct time in spite of our modern diagnostic facilities and improved clinical knowledge.

Z. Hossain, M.D.
G. Reish, M.D.
H. Rafal, M.D.
C. Edwards, M.D.

Mechanical obstruction of the gastrointestinal tract caused by gallstones is a clinical entity which has received ample attention in the surgical literature. The General Surgical Service of a large hospital admits one or two such patients yearly, and the average general surgeon is likely to encounter several cases in his lifetime. Although the incidence of gallstone ileus is one to three percent of all intestinal obstruction cases, in the aged the incidence increases to about 24%. Surgical diagnosis of intra-abdominal disorders has become progressively more accurate, but a correct preoperative diagnosis of gallstone ileus is still an uncommon occurrence. The consequent delay in instituting proper treatment is partly responsible for the most distressing feature of this condition, namely its high mortality. While the mortality from non-strangulating intestinal obstruction from other causes has been reduced to between 5 to 7%, a recent Mayo Clinic series still showed a 13% mortality from gallstone obstruction, although this represents a marked reduction from earlier estimates of 40-50%.

In this paper, the pathogenesis, criteria for clinical diagnosis, and current trends in treatment are discussed along with a review of two cases. Both patients were quite elderly and it was difficult to evaluate their clinical history and physical findings. They were admitted three weeks apart in the surgical service of Wilmington Medical Center in July of 1968. In spite of the difficulty mentioned above, correct preoperative diagnosis was made in both cases.

Case I

Patient No. 1, an 84-year-old white woman, came to the hospital with the chief complaint of a dull constant pain in the left lower quadrant for four days associated with eight to ten episodes of bile stained vomitus and abdominal distention for one day, and no bowel movement for four days.

One-and-a-half days prior to her first hospital admission, approximately six to eight months ago, the patient presented complaints of sharp, right upper quadrant pain associated with a paucity of bowel sounds, guarding and rebound tenderness. The patient was treated with fluids and naso-gastric tube and was evaluated roentgenographically. These examinations showed five to six diverticulae of the colon, a diverticulum of the duodenum, and a non-functioning gallbladder. The patient recovered with conservative therapy and was discharged.

On the present admission to the hospital the physical examination revealed an elderly woman who was responsive, quite deaf, and extremely difficult to understand. Heart rate was 100; respiration, 16 per minute; blood pressure, 110/68; weight, 138 pounds; temperature, 99F. The tongue was quite dry; eyeballs, soft; and the skin tinted over the

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Dr. Hossain is Chief Resident in Surgery; Dr. Reish is Intern in Surgery; Dr. Rafal is Senior Attending in Surgery; Dr. Edwards is Associate in Surgery, Wilmington Medical Center.

sternum. There were rhonchi at both bases. The point of maximum cardiac impulse was in the fifth intercostal space, left midclavicular line. The rhythm was irregular. No murmurs were heard, the second heart sound at the base and at the pulmonic area physiologically split. The abdomen was protuberant and there was a fullness of the left lower quadrant which was tender to deep palpation but no definite masses could be felt. No rebound tenderness was present. Bowel sounds were hyperactive with high-pitched rushes. Rectal examination demonstrated small pieces of feces. The remainder of the physical examination was essentially negative.

Laboratory Studies

EKG showed atrial fibrillation with nonspecific ST-T wave changes. Chest x-ray was within normal limits. Hemoglobin was 12.6 gm; hematocrit, 42%. White blood count was 8,600 with 65% polymorphonuclear leukocytes, 30% lymphocytes, 5% monocytes. Sodium was 122; potassium, 2.7; and chloride, 98mEq/1. BUN was 88 and blood sugar, 100 mg/100 ml. VDRL was negative. Flat plate of the abdomen showed multiple dilated loops of small bowel with no air in the colon, and a round laminated 3 cm opacity in the left lower quadrant.

The patient was digitalized with digoxin. An NG tube was passed and intravenous fluid therapy started. One day after admission, the patient remained distended and tender abdominally. Heart rate was now 84 and relatively regular. Serum electrolytes were normal and BUN 26 mg/100 ml. After a cantor tube was passed, the patient became less distended, less tender and urine ouput increased.

However, the increased bowel sounds persisted and a definite mass could now be felt in the left lower quadrant. Barium enema was done which showed diverticulae of the distal colon with no evidence of inflammation, perforation, obstruction, or tumor. The round object seen previously was not visible. The barium cleared from the colon with difficulty. Two days later an upper G.I. series was done which showed a choleduodenal fistula and a square 3 cm faceted stone in terminal ileum.

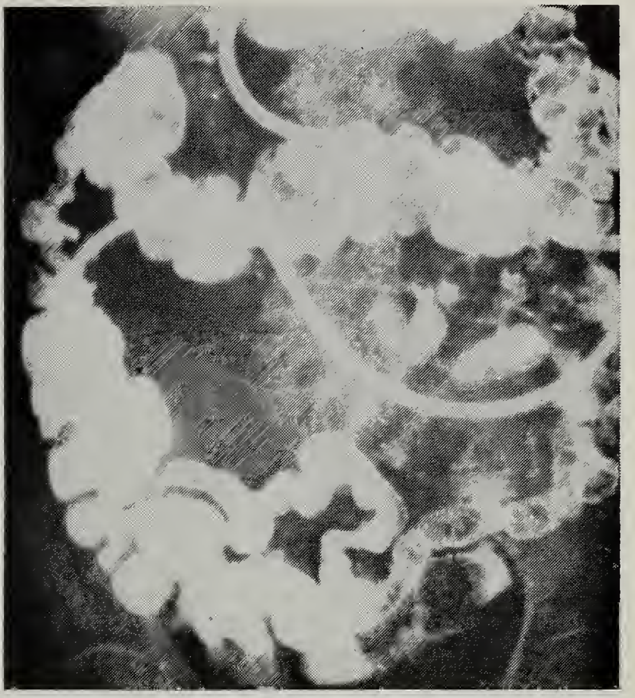

Figure 1 — Case No. 1

The patient was taken to the operating room and explored through a midline incision. A gallstone was found to be impacted in the distal ileum. Four inches of the ileum containing the stone was resected and an end-to-end anastomosis performed. Exploration of the remainder of the abdomen showed that the gallbladder was matted down but no stones in the gallbladder could be palpated. The patient tolerated the procedure well and left the operating room in good condition. She did very well during the postoperative period and had an uneventful recovery.

Case 2

An 88-year-old white woman was admitted with a history of six days crampy upper abdominal pain associated with nausea and vomiting. Vomiting was becoming more frequent, but she received some relief from her pain as a result of this vomiting which was at times fecaloid. She had not passed any flatus for three days or urine for 36 hours prior to admission. Past history revealed that she was thought to have suffered from gallbladder disease for the last three years but no radiological confirmation of the suspected gallbladder disease had been made.

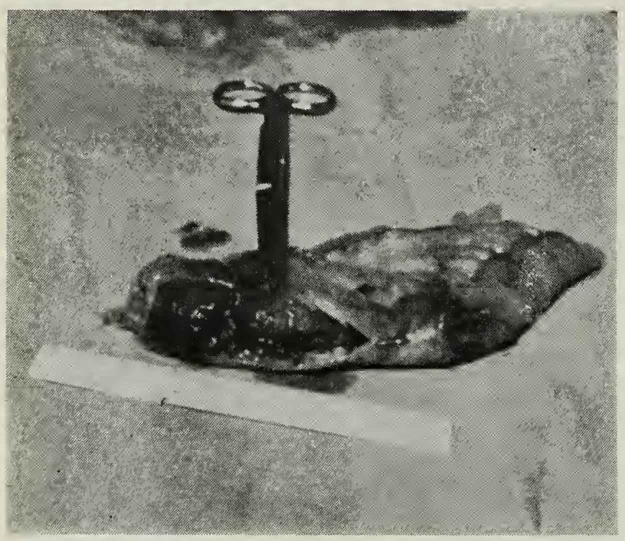

Figure 2 — Case No. 1

Physical Examination

The patient was found to be alert but in acute distress with abdominal pain. She was moderately distended with tenderness in the epigastrium and right upper quadrant and some guarding in the right upper quadrant, Bowel sounds were active. No guarding or rebound tenderness was noted. Rectal examination revealed an empty ampulla; no masses or bleeding were noted.

Laboratory Work

Hemoglobin was 16.7 gm; hematocrit, 51%. The total white count was 8,500/mm^3 with 86% polys, 4% bands, and 9% lymphocytes. Urinalysis was acid with 2+ albumin, negative ketone bodies, numerous hyaline casts, and moderate granular casts. BUN was 93 and sugar, 182 mg/100 ml; SGOT, 21 units, Na 130, K 4.4, Cl, 91 mEq/1. Flat film x-ray showed air in the biliary ductal system; no radio-opaque calculi were noted. Upper G.I. series showed complete jejunal obstruction about 18 inches from the ligament of Treitz due to a huge stone. There was a communication between the duodenal bulb and the biliary ductal system.

After proper hydration and correction of electrolyte imbalance, the patient was operated upon and a jejunal obstruction due to a huge gallstone was found at the place suggested by the x-rays. The stone was removed by a small enterotomy and the abdomen then closed. She did very well postoperatively.

Discussion: Pathogenesis

Intestinal obstruction by gallstones may occur when an inflamed gallbladder becomes adherent to an adjacent hollow viscus, perforates and discharges a stone of sufficient size to cause obstruction, usually greater than 2.5 cm into the gastro-intestinal tract. It would be unusual for a stone which is of sufficient size to cause ileus to have developed within the hepatic or common ductal systems without giving rise to obstructive symptoms necessitating surgical treatment during its formative period. It is of interest that cases had been reported in which a cholecystectomy has been previously performed.[7]

On rare occasions the gallstone may enter the peritoneal cavity after being extruded from the gallbladder. Inflammation around it may cause some kinking and extraluminal obstruction of the intestine, or it may at some future time ulcerate back into the lumen of the intestine. No such proven cases have been recorded in the literature.[19] Almost always the offending stone enters the intestine through a cholecystoenteric fistula. Such fistulous tracts may connect the gallbladder with the stomach, duodenum, jejunum, ileum or colon. In addition, internal filiary fistula have been recorded which have communicated with the pleural, pericardial cavities, tracheo-bronchial tree, the uterus, an ovarian cyst, the renal pelvis, or the urinary bladder.[16] In most of the large series, the organs involved in the fistulation in order of frequency are duodenum, colon, or stomach. The fistula probably originates in one of two ways:[1] when the stone obstructs the cystic duct, acute cholecystitis, empyema of the gallbladder or hydrops of the gallbladder supervenes and pericholecystitis follows with the development of adhesions, necrosis of the wall and subsequent fistulization between the gallbladder and the adjacent viscera.[2] More often a gallbladder afflicted with chronic cholecystitis and stones gradually shrinks and contracts as collagens within its wall mature. A stone contained within such a gallbladder is pressed with increasing force against the mucosa and ulceration develops. Mural erosion ensues, neighboring viscera become densely adherent, and the stone penetrates one of them.

Having entered the alimentary canal, three things may happen to the stone. It may be vomited out, or it may pass spontaneously by rectum, especially if the stone is less than 2.5 cm in diameter and the fistula is of the cholecystocolic type, or it may cause intractable obstruction. It has been said that less than half of the stones entering the gastrointestinal tract will obstruct.[2]

The time required for a gallstone to travel the gastrointestinal tract varies considerably from a few days to a year. Most gallstones pass quickly, but if they do not, may continue to grow by accretion and cause intermittent partial or complete intestinal obstruction.

The site of obstruction is usually terminal ileum (70% according to Foss and Summers)[20] and in descending order; middle ileum, jejunum, proximal ileum, duodenum, colon and rectum. Intermittent pyloric obstruction may result from a stone entering through a cholecystogastric fistula.[14] Sigmoid obstruction may result from stones entering the colon directly.[7] When the gallstone gets impacted in the lumen of the small or large bowel, an intraluminal obstruction results causing the morbid anatomic and physiologic effects of mechanical intestinal obstruction.

Diagnosis

Bartholin was credited with observing and describing the first case of gallstone ileus in a patient examined at autopsy in 1654. Courvoisier focused attention on the entity by recording 131 cases in the first published paper on the subject in 1890.[1,2] The first classical paper on this subject was published by Gray Turner in 1927 entitled *Gallstone Ileus — A Pitfall for the Practitioner.* The mortality rate from this disease was in the range of 40-50% in most series. Early diagnosis and treatment is a prime objective in this condition. Two points should always make one suspicious of gallstone ileus: history of gallbladder disease in the past, or history of intermittent intestinal obstruction. It is possible, but unusual, to see the obstructing gallstone in plain films. Air in the biliary ductal system and a few loops of distended gas filled bowel with fluid levels is diagnostic if it fits with the clinical picture. Later in the course, the patient may simulate adynamic ileus. Barium meal examination has been done in many cases to arrive at the correct diagnosis. In both of our cases, the correct diagnosis, the site of obstruction and the size and shape of the stone were clearly visualized by the radiological examination. The danger of a partial obstruction converting to a complete obstruction with perforation and the resultant contamination of the peritoneal cavity before and during surgery must always be kept in mind.

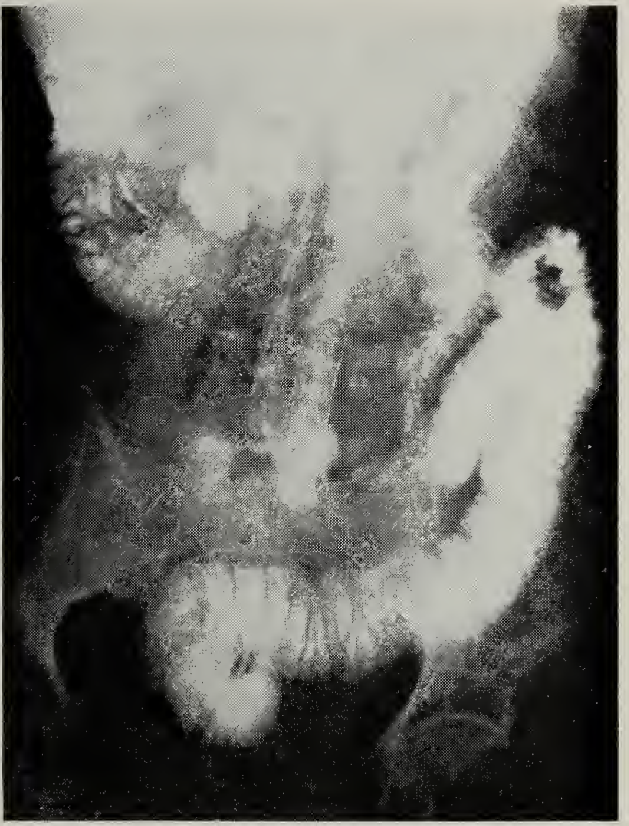
Figure 3 — Case No. 2

The incidence of intestinal obstruction due to gallstones was reported by Hand and Gilmore as 1.7%; by Rontley and Mayo as 1.2%.[13] Unfortunately, the correct diagnosis of gallstone ileus is infrequently made preoperatively.

Of the cases in the above series, correct diagnosis was made in only 23% (Hinchy); 30% (Coffey and Willox; 13% (Nemir).[13] Usually a preoperative diagnosis of intestinal obstruction of unknown etiology is made and the nature of the obstruction is revealed at the time of laparotomy.

Both of our patients presented with partial small bowel obstruction and we had a strong suspicion from the clinical history that gallstone ileus with obstruction was present. Radiological confirmation in the second case was provided in the form of free air in the biliary ductal system . In the first case, there was suspicion of a stone on the admission flat film. Still, we could not be 100% sure of our diagnosis but were able to arrive at the correct diagnosis by doing upper G.I. series. We made the decision to do these x-rays because we did not want to operate without a definite diagnosis on patients who were such poor risks because of their age and other associated conditions.

Treatment

The treatment of gallstone ileus is surgical. Surgical treatment of our cases consisted of enterostomy with removal of the stone, plus resection of the bowel involved with end-to-end anastomosis. Follow-up studies on this type of patient reveal an increased morbidity due to the presence of a diseased gallbladder or the patient's biliary enteric fistula.[5] In 1956, Morlock and associates reported two cases treated primarily by one stage repair of the cholecystoenteric fistula,[13] and surgery as outlined above for treatment of the obstructive problem. Since then, they have added fourteen more cases which were also treated in the same manner.

Conclusion

1. Gallstone ileus is a disease of the aged. Its incidence is not as infrequent as has been thought. If all patients more than 70 years old are considered, it accounts for 24% of all cases of non-strangulating intestinal obstruction.[3,18]

2. With modern knowledge about fluid and electrolyte imbalance, associated disease conditions, and improved anesthesia, the morbidity and mortality rates from this condition have remarkably decreased.

3. In spite of our modern diagnostic facilities and improved clinical knowledge, a high index of suspicion is needed to make the correct diagnosis promptly.

4. Morbidity following enterotomy and removal of the stone is increased as a result of persisting biliary enteric fistula, recurrent cholecystitis and ascending cholangitis. It is therefore worthwhile to try for one stage repair of the biliary enteric fistula and cholecystectomy, along with removal of the stone from the intestinal tract.[5,20]

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"If I have sometimes dwelt upon what seem trifles, it is because small things are necessary to perfection, and perfection is no trifle."

Dean Le Baron Briggs

NURSING HOME PROGRAM IN DELAWARE

• Continued improvement of total patient care is the goal of the nursing home program.

Mary Rundell, R.N.

Long-term care for the aged, chronically ill, and convalescents is provided in nursing homes throughout Delaware. These homes vary in size from relatively new 116-bed facility to a 13-bed frame home. As the physical plants vary so do the services offered: from complete rehabilitative services to minimum care; from 24-hour skilled nursing care to retirement living.

The State Board of Health is responsible for licensing nursing homes, rest homes, boarding homes and related institutions where care is given to more than four persons.[1] Annual licensing of these institutions is done to ensure maintenance of minimum standards and services. A registered nurse is employed full time to make periodic inspection and consultation visits to the homes throughout the state. In addition to the nurse, consultation services are provided by a sanitarian consultant and nutritionist. These all work closely with the County Health Officer in New Castle, Kent and Sussex counties to maintain high quality of patient care. Team visits are made to all Extended Care Facilities for basic surveys and resurveys. This team includes the health insurance officer, a nurse, sanitarian, nutritionist, physical therapist and social worker. The specific makeup of each team is dependent upon the degree of services provided by the institution. Individual members of the team return for periodic consultation visits to assist in strengthening weak areas and expansion of services. Programs are planned regularly for supervisory personnel to provide current information and guidance for patient care. Administrators are encouraged to maintain complete patient records, to expand recreational and activity programs consistent with the patient's physical abilities, and to involve the family to the maximum possible extent so that patients may be rehabilitated to

TABLE I

Nursing Homes and Rest Homes

		Licensed Bed Capacity	No. Extended Care Beds
Nursing Homes:			
New Castle County	16 homes	777	414
Kent County	4 homes	99	0
Sussex County	5 homes	165	50
Total	25 homes	1041	464
Rest Homes:		Total Number	Total Beds
New Castle County		4	392
Sussex County		1	210
Total		5	602

Mrs. Rundell, is Nursing Supervisor, Long-Term Care Facilities, Delaware State Board of Health.

their maximum potential as quickly as possible.

TABLE II

CHARACTERISTICS OF PATIENTS IN NURSING HOMES

Age — 65 or over — 95.2%
Age — 75 or over — 80.0%
Age — 85 or over — 33 1/3%

Diagnosis on Admission

Heart disease — 28.3%
Senility — 21.3%
Stroke — 19.2%
Fractures — 7.5%
Arthritis — 4.8%
Blindness — 3.7%
Cancer — 2.7%
Diabetes — 2.6%
Other diagnosis — 9.9%

Slightly more than 75% were women. Majority of patients were referred to homes by the family.[2]

Continuing education programs and workshops are scheduled for nursing home staffs using regional consultants, educational television and the University of Delaware. Conferences are arranged to review new plans and programs with the prospective owners, administrators and other key personnel in planning for new facilities. Close liaison is also maintained with Comprehensive Health Planning and other local and regional community health and social agencies to plan for future needs.

The overall nursing home program is developed to maintain high quality health services and patient care so that residents of these homes may be returned to the mainstream of community life as soon as possible.

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ABRACADABRA: BETTER THAN ASPIRIN?

The earliest mention of the word Abracadabra comes from Quintus Serenus Sammonicus, a doctor who was with the Emperor Severus on his expedition to Britain in 208. He was the author of a poem, which was well known in the Middle Ages, in which he says that Abracadabra is a cure for tertian fever. It should be written on a piece of paper, which must hang around the patient's neck for nine days and then thrown backwards over the shoulder into a stream running eastwards. The usual way of writing the word is:

ABRACADABRA
ABRACADABR
ABRACADAB
ABRACADA
ABRACAD
ABRACA
ABRAC
ABRA
ABR
AB
A

When the word is hung aroung the patient's neck his fever will gradually shrink away to nothing just as the word does. *(from: The Black Arts, Richard Cavendish, G. Putman, N. Y., 1967)*

PROBLEMS IN THE MANAGEMENT OF PATIENTS WITH GONORRHEA

Resistance to penicillin is responsible for failure to obtain satisfactory response in treatment of gonorrhea in many instances, but not nearly to the extent often indicated. Significant improvement in case management can be achieved by careful consideration of other factors.

Winder L. Porter, M.D.

The number of cases of gonorrhea reported in Delaware has more than doubled in the past seven years. This does not necessarily indicate any change in the prevalence of the disease as there are many factors which might account for an increase in reports. One of these is the steady rise in the number of patients who seek service in the public clinics after failure of treatment elsewhere; many of these cases would never have been reported if they had not come to the public facility and most of them would not have been subjected to epidemiologic investigation. Many of these patients have been considered to be penicillin failures, and while there no longer is question that resistance to this drug is increasing, it has been the experience of this division that many labeled "penicillin-resistant" actually represent failures because of other factors such as those outlined below.

1. *Inadequate dosage.* While cures can be obtained with dosages as small as six hundred thousand units of penicillin, one can no longer regularly anticipate success with routine administration of these amounts. The initial dose employed in Delaware State Board of Health clinics is at least 2.4 million units. For female patients, total dosage is as a minimum double that amount, given either in a single session or divided into two injections given one to three days apart. Patients are urged to return at intervals of two to three days with continuation of treatment if initial response is deemed unsatisfactory.

2. *Improper form of penicillin.* Many patients with gonorrhea are still being treated with long-acting forms of penicillin such as benzathine penicillin. While this is an excellent form for treatment of syphilis, it cannot be depended upon to produce blood levels high enough to be lethal to the gonococcus which, for eradication, requires a high level although over a relatively short period. Ordinary procaine penicillin is much to be preferred, and if one is concerned with simultaneous protection against syphilis, he should address himself to that as a separate problem by extending the period over which procaine penicillin is administered, or by combining appropriate amounts of long-acting penicillin with the recommended dose of short-acting drugs.

Oral penicillin should be included in this category of improper form. Although many patients have been successfully treated with oral penicillin, numerous patients just will not take the medication faithfully as prescribed, and we regularly see cases in persons who have a supply of oral penicillin (obtained either through their physician or from a buddy) which they are taking sporadically according

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Dr. Porter is Director, Division of Venereal Disease Control, Delaware State Board of Health.

to the severity of their disease and abandoning when symptoms subside.

3. *Inadequate follow-up.* Often patients are given an injection and told, "Come back if you have more trouble." Many obtain symptomatic relief but remain carriers who, after alcohol or some other excitement, may experience clinical relapse. Among those who return and profess to be completely cleared, one often finds residual signs or can demonstrate the organism in the urine sediment.

4. *Patient irresponsibility.* Not only do clinic patients often fail to take oral medication as prescribed, but they also frequently fail to return at recommended times so that as much medical care as possible must be compressed into a single visit. They continue to expose themselves and to consume alcohol even though specifically admonished not to and it is not unusual to find one who has had sex relations on the same day he reports for treatment. More than one husband, disdainful of advice that he forego marital relations until his wife has been adequately treated, has been rewarded with relapse, reinfection or even clinical infection manifest for the first time. It becomes mandatory to treat sexual partners simultaneously to prevent ping-pong spread and apparent failure.

5. *Faulty epidemiology.* Skilled interviewing must be applied to every case if one is to obtain success. Often a patient is quick to name the person whom he believes responsible for infecting him and will attempt to brush aside others whom he does not consider infected. Not infrequently, a man will represent himself to be single and acknowledge existence of a wife only when confronted with the blunt declaration that there has to be an unnamed contact responsible for reappearance of symptoms. Just as often it will develop that there is a regular sex partner whom he just cannot believe could be infected and who therefore should not be subjected to the inconvenience of examination. In this connection, one must not overlook the possibility that the sexual contact has been homosexual and thus deliberately shielded because of fear, embarrassment, threats, social position or political influence of the patient.

We, in Delaware, are handicapped in that we represent an island more or less surrounded by states which do not investigate gonorrhea vigorously. Exposures occur in adjoining areas which do not attempt to locate reported contacts who are left free to infect others or to reinfect the same individual. It is fallacious to feel that an infected male will have sufficient discomfort to seek treatment promptly, for indeed we see many men who literally walk the streets for weeks oblivious of an intermittent "drip," or content to explain this discharge as "a little strain." In this group will be found many carrying oral medication, or who have not returned for follow-up after an initial injection which brought relief.

6. *Failure to treat epidemiologically.* The diagnosis of gonorrhea in the female is fraught with so many difficulties that one must adhere to the policy that all women known to have been sexually exposed to a gonorrhea patient should be treated in full dosage even though there is no clinical or laboratory evidence to confirm that they, too, are infected. The same applies to the homosexual male who also should be prophylactically treated after an effort to substantiate whether he is infected.

7. *Non-specific infections.* Often what begins as frank gonorrhea is accompanied by infection by a variety of organisms (bacteria, viruses, trichomonads, etc.) which sustain the presenting complaint. It is not always possible to identify these offenders but one can achieve relief by selective administration of antibiotics other than penicillin, sulfonamides, or metronidazole. The male must be cautioned against stripping his urethra in his search for residual evidence for mechanical irritation may suffice to prolong the infection. Strictures of the urethra are not seen so commonly since we have abandoned meddlesome local irrigations, etc., but occasionally it will be found responsible for failure.

In summary, the percentage of cases of gonorrhea which are treated satisfactorily can be greatly improved by proper drug selection and dosage, intensive epidemiologic investigation, and attention to other infections or agents which may serve to prolong the symptomatology.

Highlights

CLINICAL CONSEQUENCES OF ALTERED RED BLOOD CELL PRODUCTION

Allan Erslev, M.D. — *Jefferson Medical College. Medical Conference, WMC, October, 1968*

Just as any other organ, the circulating red blood cell mass (an organ itself approximately the size of the liver) has an optimum size which is under the control of a strict regulatory mechanism. Although many loopholes remain, many observations are now leading to some understanding of this mechanism.

Study of the Peruvian Indians and Sherpa tribesmen living at high altitudes provided evidence that tissue oxygen tension exerted an effect on erythropoiesis. Early laboratory studies utilizing transfusion of plasma from anemic rabbits into normal rabbits leading to the development of polycythemia established the presence of a circulating humoral substance with effect on erythropoiesis. This material has been named erythropoietin and it is now available in purified form for experimental uses. Further research has led us to the kidney as the major source of erythropoietin. This has led to the conceptual development of a scheme for control of RBC production; the kidney, modified by stimuli from the heart, lungs, blood vessels, tissue oxygen tension and oxygen consumption, secretes erythropoietin. This substance influences pluripotential bone marrow stem cells to differentiate to RBC precursors, thus increasing the RBC mass. This mass is influenced by the input and destruction of red cells. This mass, along with plasma volume, determines the hemoglobin concentration which, in turn, signals the kidney to decrease erythropoietin production. This is the classical pattern of a negative feedback control system.

The system isn't perfect and, as noted above, there remain some problems. For example, in chronic pulmonary disease the compensatory polycythemia ultimately leads to such increased viscosity of the blood that tissue oxygen tension is lowered secondary to sludging. The polycythemia then seems self-defeating. However, the situation is ameliorated to some extent by an overall increase in the total blood volume (including plasma volume). Thus, blood volume has an effect on tissue oxygen tension and thus on RBC production.

In the anemia of renal disease, the feedback system is interrupted at the level of the kidney due to the reduced production of erythropoietin. In general, the worse the renal impairment, the higher the azotemia, the lower will be the hemoglobin. Erythropoietin extracts will correct this anemia but cobalt and androgens will not because they work through the kidney to produce more erythropoietin (which the damaged kidney cannot do).

Lastly, the level of the serum iron appears also to affect the rate of red cell production. The observation in hereditary spherocytosis that splenectomy leads to a drop in both the serum iron and the reticulocyte count without any change in hemoglobin level illustrates this point.

(Abstracted by John E. Benzel, M.D.)

DR. SAMUEL JOHNSON'S FIRST STROKE

Allston J. Morris, M.D. — *Quoted from his address entitled,* Stroke, *delivered to the* Torch Club, *April, 1968.*

What does it feel like to have a stroke? The answers to this question must be as many and varied as the people who might answer it. But one answer strikes me not only as instructive but inspiring: the indomitable spirit of a great intellect faced with its greatest threat. This is the account James Boswell has left us of Dr. Samuel Johnson's first stroke:

"My anxious apprehensions at parting with him this year proved to be but too well founded; for not long afterwards he had a dreadful stroke of the palsy, of which there are very full and accurate accounts in letters written by himself, which show with what composure of mind, and resignations to the Divine Will, his steady piety enabled him to behave. Two days after he wrote to Mrs. Thrale: 'Thus I went to bed, and in short time waked and set up; as has been long my custom, when I felt a confusion and indistinctness in my head, which lasted, I suppose, about half a minute. I was alarmed, and prayed God, that however he might afflict my body, he would spare my understanding. This prayer, that I might try the integrity of my faculties, I made in Latin verse. The lines were not very good, but I knew them not to be very good: I made them easily, and concluded myself to be unimpaired in my faculties.

'Soon after I perceived that I had suffered a paralytick stroke, and that my speech was taken from me. I had no pain, and so little dejection in this dreadful state, that I wondered at my own apathy, and considered that perhaps death itself, when it should come, would excite less horror than seems now to attend it.

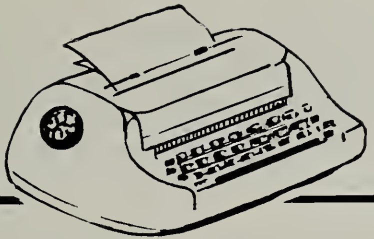
'In order to rouse the vocal organs, I took two drams. Wine has been celebrated for the production of eloquence. I put myself into violent motion, and I think repeated it; but all was vain. I then went to bed, and, strange as it may seem, I think, slept. When I saw light, it was time to contrive what I should do. Though God stopped my speech, he left me my hand; I enjoyed a mercy which was not granted to my dear friend. My first note was necessarily to my servant, who came in talking, and could not immediately comprehend why he should read what I put into his hands.

'I then wrote a card to Mr. Allen, that I might have a discreet friend at hand, to act as occasion should require. In penning this note, I had some difficulty; my hand, I knew not how nor why, made wrong letters.' "

And here is an account by his physician of the final illness of the great seventeenth century pathologist in 1694 Marcellus Malpighi:

"Marcellus Malpighi was of a constitution that tended to a dryness, an Indifferent Habit of body, and a middling stature: He had been subject for many years to vomiting, bilious stools, palpitations of the heart, stones in the kidneys and bladder, a pissing of blood, and some light touches of the gout. Upon his coming to Rome, all these disorders were inflamed . . . Such as was the condition of Malpighi on July 25, 1694; at which time he was seized, in the 66th year of his age . . . with an apoplexy, ushered in with care, passions of the mind, etc. The apoplexy was attended with a palsie of the whole right side, and a distortion of the mouth and right eye. Presently we tried several remedies, particularly bleeding in the left arm. If it had not been for the contrary sentiments of the physicians that consulted with me, I would have ordered the blood to be drawn from the paralytick arm; upon the consideration that the defective circulation of the fluids of the parts affected is not retrieved by any speedier method than that of opening a vein in the arm . . . We prescribed at the same time . . . several other spiritous, cephalick and specific remedies; by the use of which, after struggling 40 days with a long train of grievous symptoms . . . he got clear of the apoplexy and palsie. But . . . this famous man suffered much by the foregoing disease, in his memory and reason, and melted into tears upon the slightest occasion. In fine, being worn out with these and other symptoms, he was seized November 29, with a fresh fit of apoplexy . . . This new fit was ushered in by a grievous vertigo, with a fit of the stone in the bladder for eight days, and an exasperation of the above-mentioned symptoms. But the apoplectic fit was more dismal than all the other symptoms, for in spite of all remedies whatsoever, he dy'd four hours after invasion.

"When I opened his head, I found, in the cavity of the right ventricle of the brain an extravasation of about two pints of black clotted blood which was the cause of his apoplexy and his death . . . And this is the sum of what I observed in dissecting his corpse, December 7, 1694."



Special Reports

INSTITUTE ON DISASTER PLANNING

Chicago, Illinois, June, 1968

L. Mario Garcia, M.D.

At the time of disaster, scarcity of resources is not usually a problem. The problem lies in the proper planning, management and organization of resources already available. No hospital is an isolated island but should be considered as the center of a community and therefore its planning should be coordinated not only within itself but also with the fire department, police, civil defense, ambulance services and, not less importantly, with the plans of every one of the hospitals within the city. Also included should be the hospital volunteers, the Visiting Nurses' Association, the clergy and the news media. If possible, a list should be made of all the registered nurses in and around the city who will volunteer their services in case of disaster.

Based on past experiences, several differences have been noted in the various forms of disaster. For instance, major transportation disasters do not disturb community life. In cases of a natural disaster, the hospitals may be as seriously involved as the community at the time of the event. In cases of civil disaster, the hospitals are spared at the onset but there is a serious potential for danger to the hospitals at a later date. Problems usually do not arise from real shortages of manpower or personnel but from the right people not being available when they are needed. Medical and nursing personnel have been found to flow rapidly to the hospital, but a problem exists regarding what to do with them once they arrive. It is important to know how well the hospital handles the initial input of casualties.

Hospitals have been advised to provide themselves with two-way radios tied up with the police and armed forces. In this manner information can be supplied to the hospital immediately upon the occurrence of a disaster. The hospital should also request from the police, hourly reports of the status of the disorder; this is important in proper planning and preparation. At the time of disaster, all the hospital doors should be locked except for two; one to the triage area for patients' admission and the other for the use of all other personnel who will work in the hospital and newsmen.

The immediate care of patients injured by tear gas or radiation material has been found to be quite simple, consisting of prompt removal of their clothing followed by a good shower. A shower room is therefore a necessity.

Adequate planning must be made also for the handling of internal disasters, fire being the most common. A fire brigade composed of all available male personnel in the hospital should be instituted to work in groups of no less than two men. Boxes should be prepared which contain all the necessary tools to combat fire. Smoke masks, axes and lines have been found quite useful. A line can help workers find their way out of a smoke-filled room and also help pull out injured victims.

A great deal of importance was given in this meeting to the PDH or *Package Disaster Hospitals.* It is estimated that at the present time there are one and one-half million hospital beds in the United States. Most of these beds are located in the cities and at least half of them are expected to be destroyed at the time of a nuclear attack. At the present time there are 2500 PDH available in the country. Each one of these hospitals has a total of 200 cots that can be expanded to a total of 800 beds, providing a total of two million beds. Each one of these hospitals weighs 25 tons and requires a twenty thousand foot area to operate. With no previous training, it takes a period of two to three days to have one of these hospitals in full operation but with previous preparation they can be put into operation in a period of twenty-four hours. Training sessions on these are given four times a year at the Memorial Hospital in Holmhurst, Illinois.

Hospitals should be made sanctuaries and proper protection should be afforded at all times. If necessary, some of the hospital personnel should be deputized. The triage area should be used only for sorting and classification of patients, the diagnosis of conditions, and the performance of life-saving procedures such as stoppage of major hemorrhages and care of sucking chest injuries, as well as restoration of heart action and breathing. Personnel not directly involved with the care of patients in the triage area should be removed from this place; this would also include physicians. The sorting and tagging should be done while patients are in a single line except for seriously injured patients. The command post should definitely not be located in the triage area although it is advisable to have its location somewhat near the area to facilitate communications. The entire medical staff should be divided into two groups which will cover the hospital during an equal period of the year. Each one of these groups is to be divided into shifts and each shift is to cover a period of either twelve or eighteen hours. Space should be provided in the hospital for the medical and nursing staff to congregate and sleep while not at work.

Minor injuries should not be treated at the time of disaster. Simple cleaning and redressing should be provided and the patient instructed to return at a later date for definite treatment.

Space should also be provided in the hospital to accommodate the news media. They should not be permitted in any other area of the hospital particularly in the triage area or emergency room.

A proper space should be allocated near the triage area for the decontamination of radiation victims as well as those injured with tear gas. Each hospital should make plans according to the most likely types of disaster victims it might receive, depending on their circumstances. In an area which is heavily surrounded by oil refineries, a great many casualties could be produced by burns.

It must be remembered that in the case of national disaster there is a sudden increase in input of patients. In case of civil disaster the input is more gradual and is particularly heavy during the night hours. In case of civil disaster there is always a period of incubation which affords time for proper planning and organization.

To conclude, I would like to say that the Medical Center or the County Medical Society should conduct regular meetings on Disaster Planning. Speakers for these programs can be obtained by writing to Mr. Robert O. Stewart, Chief of Training, 6935 Wisconsin Ave., Chevy Chase, Maryland, 20015. I would like to thank the Committee for choosing me as the representative to this meeting and Mr. Crawford for selecting me to attend this most interesting Institute.

* * *

> "Dissect in anatomy, experiment in physiology, follow the disease and make the necessary necropsy in medicine; this is the threefold path without which there can be no physician."
>
> *Bichat*

IMMUNE SERUM GLOBULIN FOR PREVENTION OF VIRAL HEPATITIS

In June, 1968, the Public Health Service Advisory Committee on Immunication Practices completed the following recommendation in the use of immune serum globulin for prevention of viral hepatitis. It is hoped that the publication of these recommendations will serve to keep the physicians of Delaware abreast of current thinking on this subject.

Also, it is worth noting that the Delaware State Board of Health currently has a policy of providing immune serum globulin for infectious hepatitis, free of charge, to those who cannot afford to purchase it themselves. This material will be provided for family contacts at a dosage level of 0.01 cc per pound of body weight and for prophylaxis among groups and communities under epidemic or possible epidemic conditions. The epidemic determination will be decided by the Board of Health on the basis of local epidemic intelligence.

Infectious Hepatitis

The agent that causes human infectious hepatitis has not yet been identified but is presumed to be a virus. No vaccine is available. Administration of immune serum globulin (ISG)* to exposed persons can, however, afford a high degree of protection against infectious hepatitis. ISG substantially reduces the frequency of overt clinical disease, although inapparent infection may occur. Following such infection, life-long active immunity is thought to develop.

Patients with infectious hepatitis have been shown to excrete virus in stool as much as two to three weeks before and two weeks after onset of jaundice. Viremia has been demonstrated approximately two weeks before and less than one week after onset of jaundice. Transmission of the disease is principally by the fecal-oral route and is most likely to occur under conditions of inadequate sanitation or close contact with infected individuals. Direct person-to-person spread of infection otherwise is unusual. Transmission is also possible by the parenteral route. The incubation period of infectious hepatitis is relatively long, in most cases between 15 and 50 days (average 25 to 30 days).

Immune Serum Globulin

Immune serum globulin is prepared for intramuscular injection from large pools of plasma (1,000 or more donors) obtained from venous and/or placental blood. The product is a 16.5% solution of globulin prepared by cold alcohol fractionation. Serum hepatitis has not been transmitted by ISG of this type.

Use of Immune Serum Globulin for Preventing Infectious Hepatitis

The decision to administer ISG should be based on assessment of the epidemiologic circumstances — specifically, whether the exposure could result in infection. The administration of ISG is relevant when there is: 1) definite exposure to a known case or source of infection, or 2) anticipated continuous or intermittent exposure.

ISG given after known exposure should be given as soon as possible. Its prophylactic value decreases as time increases after exposure. The use of ISG more than five to six weeks after exposure is not indicated.

Dosage

The dosage patterns of ISG in common use have been derived primarily from field and clinical observations. Data from these observations provide operational guidelines on which to base recommendations.

Under most conditions of exposure, protection has been afforded by giving 0.01 ml of ISG per pound of body weight (0.01 ml/lb or approximately 0.02 ml/kg). This dosage may be conveniently simplified (Table 1).

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*The official name of the product in use is: Immune Serum Globulin (Human). Poliomyelitis Immune Globulin (Human) is an equivalent product and may also be used; other immune globulin products are not suitable.

Table 1

Person's Weight (lbs)	ISG Dose (ml)*
up to 50	0.5
50 - 100	1.0
over 100	2.0

Household Contacts

There is good evidence that close personal contact, such as occurs among permanent or even temporary household residents, is important in spreading infectious hepatitis. Secondary attack rates are high for household contacts, particularly children and teenagers. Although secondary attack rates are somewhat lower for adults, their illnesses tend to be more severe. For these reasons, ISG is recommended for all household contacts who have not already had infectious hepatitis.

School Contacts

Although the highest incidence of hepatitis is among school-age children, contact at school is usually not an important means of transmitting this disease. Therefore, routine administration of ISG is not indicated for pupil or teacher contacts of a case. However, when epidemiologic study has clearly shown that school or classroom contact is responsible for continued transmission of disease, it is reasonable to administer ISG to individuals at risk.

Institutional Contacts

In contrast to schools, conditions favoring transmission of infectious hepatitis exist in institutions such as prisons and facilities for the mentally retarded. Sporadic cases as well as epidemics have frequently been reported in such institutions. ISG administered to patient and staff contacts of cases in the doses shown in Table 1 effectively limited the spread of disease in these circumstances.

Where infectious hepatitis exists endemically, particularly in very large institutions with high rates of admission and discharge, residents and staff personnel may be subject to frequent and continuing exposure. Under these conditions, use of ISG has not resulted in eradication of hepatitis. However, it has been shown to provide temporary protection when administered in doses of 0.02 to 0.05 ml/lb at the time of admission or employment. It may be necessary to readminister ISG in the same dose after six months if the risk is felt to persist.

Hospital Contacts

Routine prophylactic administration of ISG to hospital personnel is not indicated. Emphasis should be placed on sound hygienic practices. Intensive, continued education programs pointing out the risks of exposure to infectious hepatitis and the recommended precautions should be directed toward hospital personnel who have close contact with patients or infectious materials.

For those accidentally inoculated with blood or serum of patients with hepatitis, the appropriate prophylactic dose of ISG is that recommended in Table 1. There is no reason to give a larger dose because ISG appears to be effective in preventing only infectious hepatitis, not transfusion-associated (serum) hepatitis (see section "Transfusion-Associated Hepatitis").

Office and Factory Contacts

Routine administration of ISG is not indicated for persons in the usual office or factory situation exposed to a fellow worker with hepatitis.

Common Source Exposures

When a vehicle, such as food or water, is identified as a common source of infection of multiple hepatitis cases, administration of ISG should be considered for all those exposed to the source.

Pregnancy

Current information does not indicate that pregnancy in itself should alter the recommendations for ISG prophylaxis.

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*Within limits, larger doses of ISG provide *longer-lasting* but not necessarily *more* protection. Higher doses are, therefore, used under certain circumstances, (see sections "Institutional Contacts" and "Travelers to Foreign Countries").

Travelers to Foreign Countries

The risk of infectious hepatitis for U. S. residents traveling abroad varies with living conditions and the prevalence of hepatitis in the areas to be visited. Travelers may be at no greater risk than in the United States when their travel involves ordinary tourist activities and little exposure to uncooked foods or water of uncertain quality. For these travelers, ISG is not recommended.

For travelers visiting areas where hepatitis is a major health problem who may be exposed to infected persons and to contaminated food and water, there is increased risk of acquiring hepatitis. A single dose of ISG is recommended for them as shown in Table 2 which gives guidelines for U. S. residents traveling in foreign countries. (Large geographic areas have been defined for ease in interpretation and because information is inadequate to permit developing more precise boundaries.)

For individuals who reside abroad in areas where hepatitis is common, the risk of hepatitis is greatly increased and appears to continue so for years. Experience has shown that regular administration of ISG offers at least partial protection against hepatitis. It is recommended that prophylactic ISG be repeated every six months at doses indicated in Table 2.*

Reactions

Intramuscular administration of ISG rarely is followed by adverse reactions. Discomfort may occur at the site of injection, especially when larger volumes are used. A few instances of hypersensitivity have been reported, but in view of the large number of persons who have received ISG, the risk is exceedingly small.

ISG should not be administered intravenously because of the danger of severe reactions.

Antibody against gamma globulin may appear following administration of ISG although its clinical significance is unknown. When ISG is indicated for prophylaxis of infectious hepatitis, this theoretical consideration should not preclude its administration.

Table 2

Areas Included	Body Weight (lbs)	Travel (1-2 mo.) Dose (ml)	Travel (3-6 mo.)** Dose (ml)
Central America, Africa, Asia, South America, Rural Mexico, South Pacific Islands	To 50	0.5	1.0
	50-100	1.0	2.5
	Over 100	2.0	5.0
Europe, Canada, Urban Mexico, Australia, New Zealand, Japan, Caribbean Islands	Routine ISG prophylaxis is not indicated		

Guidelines for ISG Prophylaxis of Infectious Hepatitis for U.S. Residents Traveling or Living in Foreign Countries.*

Transfusion-associated Hepatitis

The risk of transmitting viral hepatitis by blood transfusion is a serious and continuing problem. Several reports indicate that the incidence of clinical hepatitis is greater among recipients of blood obtained from certain categories of donors. The risk also becomes greater as the number of transfusions increases. Furthermore, the case-fatality rate of transfusion-associated hepatitis increases with advancing age.

Evidence has been advanced both for and against the effectiveness of ISG as prophylaxis of transfusion-associated hepatitis. Although some investigators have reported that 10 ml of ISG at the time of the transfusion and again one month later reduced the number of cases, other equally careful studies have not substantiated this claim. Existing evidence provides no adequate basis for recommending that ISG be given routinely to recipients of blood transfusions.

Among the means of effectively lowering the incidence of transfusion-associated hepatitis are: careful selection of donors, development of central registries of known or suspect carriers, and use of blood and potentially icterogenic blood products only when necessary.

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*Some agencies have used up to 0.05 ml/lb each five to six months rather than the 5 ml for adults recommended here.

*In all travel, care should be exercised in consuming uncooked food and water of uncertain quality.

**Repeat every six months of travel or residence.

Letters to the Editor

To the Editor:

The third line in the summary section of the article entitled "Reaction of Physicians to the Merger of the Wilmington Hospitals" which appeared in the April issue of the Delaware Medical Journal reads: "The merger was initially and continues to be supported by a majority of the members of this community." It should read: "The merger was initially supported by a majority of the members of this community." Table 6 indicates the absence at this time of either majority support or opposition to the merger.

Allen Schwartzbaum, M.D.
Robert Rothman, M.D.
John McGrath, III, M.D.

To the Editor:

From long years of experience, I have repeatedly found many patients who work in offices in the city who suffer tremendously from the heavy, unthinking smoking of their associates. If you have ever been to a medical meeting full of heavy smokers, I am sure you know what I mean. I have asked each member of my office staff to read the recent editorial in the *Medical Bulletin on Tobacco* which contains the following statements:

". . . Some persons are made uncomfortable and others become acutely ill when exposed to tobacco smoke . . . Cigarette smoke harms not only the inveterate smoker . . . Intolerance to tobacco is common in both allergic and non-allergic patients. The effects of tobacco smoke appear to be of an irritative rather than an allergic character. Clyde Fulmer, M.D., states that spirals of mucus found in the sputum of patients with lung disease are almost always found in the sputum of smokers and also in the sputum of non-smokers who worked near smokers and breathed their cigarette smoke.

"When an individual smokes in a poorly ventilated space in the presence of others, he infringes on the rights of others and becomes a serious contributor to air pollution. Clouds of tobacco smoke may be a substantial hazard to the well-being of the non-smoker as well as a violation of his personal rights."

I agree with this position that the cigarette smoke of others may constitute "a hazard for those innocent of the tobacco habit but possible victims none-the-less."

Charles M. Bancroft, M.D.

To the Editor:

On behalf of the Woman's Auxiliary to the Medical Society of Delaware, I would like to thank you for printing Mrs. Davis Durham's article on gift giving to doctors.

The auxiliary has long felt the same way and has been urging their members to express their gratitude in this manner.

May we go a step further and recommend the charity? A donation to your favorite doctor's medical school through AMA-ERF. Each county auxiliary will gladly help with your Christmas shopping.

Claudette J. Weiss, *President*
Woman's Auxilary

TURNOVER OF BODY PROTEIN

"The body of a normal adult male weighing 70 kg has a total protein content of about 8-12 kg, of which about 50% is in the supporting structures (bone, connective tissue and skin), 40% in muscle and 10% in viscera. The rate at which the body protein is broken down and resynthesized varies enormously from one tissue to another; it is a few days in the case of certain proteins of the gastro-intestinal tract and some years in the case of connective tissue collagen, which constitutes some 30% of the total body protein. The over-all turnover rate is about 5-10 gm/kg per day or roughly five times the daily protein intake. . . Despite this tremendous metabolic activity, the balance of anabolic and catabolic forces is so finely controlled that the external nitrogen balance in a normal adult is zero. *(Modern Trends in Endocrinology.* Edited by H. Gardiner-Hill *Appleton-Century-Crofts, 1967)*

Editorials

DOCTORS, DEATH, AND THE TRUTH

Survey information, especially when personal material is being assessed, must always be evaluated by experts in the polling art. Which individuals within the group receiving the questionnaire choose to complete and return it may vary with, among other things, the intensity of negative or positive feelings the questions provoke. The use of automated techniques for collating survey results makes their administration and tabulation much easier but it also restricts responses to unqualified answers — a requisite often too confining for emotionally-charged material.

Dr. John Caldwell, chairman of the department of psychiatry at the University of Miami, has recently conducted a highly interesting and important opinion survey which he reported upon at the annual meeting of the Academy of Psychosomatic Medicine. His entire study will be published in the Journal of the Academy, but these excerpts from his study may intrigue you.

Should the dying patient be told the truth about his illness? he asked a group of professional people, including doctors of all varieties, lawyers, and clergymen. Eighty-eight percent felt that the incurable patient should be told so. The lawyers were the most unanimous; all but 2% of them were in favor of telling the patient the truth. However, Dr. Caldwell went further. He also asked the question, *Would you want your own doctor to tell you the truth if you were considered to be incurably ill?* To this second, more personal query, the answers were as follows:

Lawyers, 97% yes Ministers, 87% yes
Psychiatrists, 90% yes
All other physicians, 78% yes

But over the age of 60 years, only 12% of the group still felt they wanted to be told the fatal truth. Psychiatrists rated the highest in maintaining their personal curiosity after 60 years, but even their insistance had declined from 90 to 30% and the non-psychiatrist physicians decreased to the lowest of any of the groups; only 6% of those surveyed felt they still wanted to know their truthful prognosis if they were more than 60 years old.

Dr. Caldwell is presently preparing another survey to see if there are further intra-group differences among physicians — between internists, for example, compared to surgeons. But it is already apparent that as a group, physicians, with the exception of psychiatrists, have greater difficulty than any other profession in handling their own feelings regarding personal terminal illness. Is this a case of familiarity not breeding contempt? We wonder.

B.Z.P.

ADVERSE DRUG REACTION

In this issue Dr. Ellis Kendle reviews the occurrence of megaloblastic anemia associated with the administration of Dilantin. It is of great interest that this significant abnormality is just now being reported and studied since Dilantin has been a major drug in the control of a common disease for thirty years. There is a moral to this story: no drug is really a completely safe drug, and patients who need to take any drug over a long period of time must be watched suspiciously for the occurrence of the unexpected. Most hospitals have systems for the reporting of drug reactions, but most drugs are not taken by hospital patients. The Council of Drugs of the American Medical Association has for this reason established a Registry on Adverse Reactions, and all physicians are encouraged to report such reactions occurring in their patients, to this Registry.

The practice of medicine carries with it certain civic responsibilities for the protection of other patients as well as one's own. Reporting adverse reactions is one of these responsibilities. Let none of us forget the thalidomide story. It can happen here.

B.Z.P.

Delaware Academy of General Practice

PARTICIPATION OF REGIONAL HEALTH PROGRAMS

A recent survey relating to participation in regional health programs was conducted by Doctors Phillip Naumoff and Fred Light with the authorization of the Commission on Legislation and Public Policy of the American Academy of General Practice. Replies from 26 state chapters were as follows:

Each state chapter which replied has functioning Regional Medical Programs with doctors participating on certain committees. As many as 22 of 25 participating doctors are AAGP members. Comprehensive Health Planning programs have begun in 22 states and 17 of the participating committee doctors are AAGP members. Only 9 of the 26 states reporting have started OEO programs, for a total of 30 programs. Most of these programs are in the larger cities, with a general practitioner in charge of two and employed in eight of the programs. Eighteen chapters, through their state-level Committee on Education, are participating in the planning of regional health programs. The states of New York, California, Ohio and Michigan are much further along in these programs than any of the other states.

It was the consensus of the replies that the commissions and committees appointed by the state to organize Regional Medical Programs have consistently not sought representation from the state societies or the state AGP. Physicians serving on such committees or commissions were in the minority, and occasionally only one out of 50 members was a physician.

The AAGP has representatives on many of the programs but must strive to achieve even better representation, especially in the planning and execution areas of the programs. This is especially important in the Neighborhood Health Center programs, where only two general practitioners are in charge and only eight are employed—in 30 centers. One of the prime purposes of Neighborhood Health Centers is to provide community health care and this responsibility must remain with the family practitioner.

It should be noted that the Delaware Academy of General Practice in September 1968 approved the sponsorship of a neighborhood health center in a medically deprived section of Wilmington, in cooperation with the Greater Wilmington Development Council. However, no progress had been made due to failure in funding the program.

It is hoped that participation by responsible segments of the community will result in sources of funding, so that this sorely needed program can be initiated.

RATS: THE AWFUL FACTS OF LIFE

The Norway, or sewer, rat is about 18 inches long from nose to tip of tail and weighs about a pound. It has a gestation period of twenty-two days and reaches sexual maturity within three or four months: the average female produces twenty baby rats a year. Norway rats require only an ounce of water a day in order to subsist. They can burrow underground for great distances, and they can gnaw their way easily through wood, plaster, and crumbling masonry. In fact, rats must gnaw in order to survive because their incisor teeth grow at a terrific rate — up to five inches a year — and would grow right into their jaws if they didn't keep gnawing.

With the organization of the Bureau of Pest Control in New York City in 1964, the number of rat bites dropped from over 700 to under 500. The operating budget of this agency is about one-and-a-half million dollars. *(From an interview with Murry Rapheal, Director of the N.Y. Bureau of Pest Control, The New Yorker Magazine).*

President's Page

LEGISLATIVE ACTIVITIES OF THE MEDICAL SOCIETY

An announcement of the passage of SB44 and SB42 in the Senate of the State of Delaware by a substantial vote may seem to be superfluous at this time. All interested citizens are aware of the part played by the Medical Society and all the physicians of Delaware. A vote of thanks is due for the excellent work of our Executive Secretary, Mrs. Anne Shane, and her devoted staff. The work of Senator Dean Steele is also greatly appreciated.

The Women's Auxiliary of the Medical Society of Delaware has also helped in the passage of this measure. To these dedicated ladies, the Medical Society is sincerely thankful.

My personal feeling is that we have passed the most difficult stage of our efforts. The death knell for the outdated coroner system has been sounded. As you know, SB42 must be passed by a two-thirds majority of both houses in two successive sessions of the General Assembly before it can be enacted into law. SB44 requires a simple majority of both houses in this session, but we are most anxious that it pass in the House with Senator Steele's Senate Amendment 2, which provides that a doctor of osteopathy, rather than an undertaker, who has no part to play in this medical-legal realm, be on the Board of Post-mortem Examiners. We must continue with our efforts until the law is finally enacted next year.

Now, on the national scene, I would like the members of the Medical Society to know that Senator John J. Williams, through the Senate Finance Committee, has initiated a study of both medicaid and medicare programs to determine to what extent abuses have developed and what action is to be taken to improve their operation. Our own Council has voted to support Senator Williams' probe of these programs. I am quoting Senator Williams in his communication with me in which he states, "I can assure you that this is not a witch hunt, but we are interested in correcting abuses and in finding and correcting any errors in the law."

I am certain Senator Williams would appreciate hearing from the members of the Society for their suggestions and support of this worthwhile project.

Charles M. Moyer

In Brief

The Month In Washington

HEW plans, to impose Blue Shield schedules for physicians under medicaid and to limit payments to hospitals under medicaid and medicare, drew strong responses from the AMA and the American Hospital Association. Dr. Dwight L. Wilbur, president of the AMA, urged in a letter to Robert H. Finch, HEW Secretary, that all segments of the health care field be consulted in effecting economies in government-paid health services.

Medicare — Medicaid

Dr. Wilbur wrote Finch, following the HEW announcement that federal spending on the medicaid-medicare programs would be trimmed by $328 million through imposing medicaid fees schedules based on prevailing Blue Shield rates, limiting mental illness benefits under medicaid and cutting down hospital overhead allowances in medicaid and medicare.

Concerning the imposition of Blue Shield rates as fee schedules under medicaid, Dr. Wilbur warned that a later step "might be that of physicians in groups on salary and abandonment of the fee-for-service principle." He said that physicians, in combatting such government efforts, must accept the major responsibility of keeping fees as moderate as possible.

Drug Combinations

Medical school professors critical of drug combinations were called as witnesses in two days of hearings opening this phase of the drug industry probe which began nearly two years ago. Two physicians were among 30 drug experts who evaluated combination drugs for the National Academy of Science. The experts' unanimous report said the combinations were useless and sometimes dangerous.

The report caused the FDA to serve notice April 2 that the 78 combination drugs studied by the scientists would be banned from the market unless drug makers could prove the Academy studies were wrong. Drug companies are fighting the FDA order as to many of the combinations that would be banned. In a letter to FDA, Senator Nelson, D-Wis., said "tens of millions of children and adults across the nation are unwittingly being exposed to potentially serious health hazards by the unnecessary consumption of cyclamate-sweetened soft drinks, cereals, desserts and 'sugar'-coated pills." He added, "increasing scientific evidence indicates that cyclamates can cause chromosome breakdown, the birth of undersized offspring in animals, interference with effectiveness of certain antibiotics, persistent diarrhea, liver disease, skin irritation and eruption, difficulty with blood clotting and high blood pressure."

Mental Health of Children

The Joint Commission on Mental Health of Children is recommending a broad program aimed at bettering the health of the nation's children and youths at an estimated cost of $6 billion to $10 billion a year.

President Nixon, in a message to Congress, said: "So crucial is the matter of early growth that we must make a national commitment to providing all American children an opportunity for healthful and stimulating development covering the first five years of life."

Speakers On "Ask the Doctor"

Speakers for June, 1969, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: June 3, Carl I. Glassman, M.D., *Hernia;* June 10, Henry H. Stroud, M.D., *Epilepsy;* June 17, Charles Levy, M.D., *Diabetes;* June 24, Albert L. Ingram, M.D., *Mental Health in Delaware.*

Personal Glimpses

Howard L. Reed, M.D., has been appointed director of the Medical Department of Hercules, Inc., to replace Lemuel C. McGee, M.D., who will retire September 1, 1969 . . . James F. Flanders, M.D., has been appointed assistant director of the Medical Department of Hercules, Inc. . . . John F. Gehret, M.D., was installed as a Fellow of the American College of Obstetricians and Gynecologists at its annual meeting . . . William T. Reardon, M.D., addressed the 28th annual meeting of the American Society of Group Psychotherapy and Psychodrama, April 25-26, at the Biltmore Hotel, New York City.

Blue Light Therapy for the Newborn

Blue light therapy which can help reduce the possibility of a dangerous illness in newborn babies may in itself produce serious effects on the unprotected eyes of infants, a team of researchers from Temple University Health Sciences Center revealed. The use of blue light has been shown to reduce the blood levels of a bile pigment, bilirubin, which is associated with a type of brain damage called kernicterus—a degeneration of brain tissue.

The tests conducted on piglets, which react physiologically like newborn infants, showed retinal changes after exposure to blue fluorescent light for 72 hours. These preliminary studies indicated that the eyes of infants exposed to intense light for extended periods of time, as in the phototherapy of jaundice in the newborn, should be shielded during the periods of light exposure.

CLINICAL NOTICES AND MEETINGS

Hematology Course

The American College of physicians will present a course entitled *Hematology for Internists with Emphasis on Recent Advances* at the University of Rochester Medical Center, Department of Radiation Biology and Biophysics, Rochester, New York, June 16-20, 1969. Fee: Members, $60; Nonmembers, $100. For details, write: Edward C. Rosenow, Jr., M.D., Exec. Dir., ACP, 4200 Pine St., Phila., Pa. 19104.

Flying Physicians Meet

The 15th Annual Meeting of the Flying Physicians Association will be held at the Lake Placid Club, Essex County, New York, June 15-20, 1969.

Coronary Care Conference

The Second National Conference on *Drug Therapy in Coronary Care — 1969*, will be held June 18-20, 1969, in the Denver Hilton Hotel, Denver. Fee is $40. For details, write: William D. Nelligan, Exec. Dir., Amer. Col. of Cardiology, 9650 Rockville Pike, Bethesda, Md., 20014.

AMA Annual Convention

The AMA's 1969 Annual Convention will be held in New York City, July 13-17, 1969, in the Coliseum and New York Hilton Hotel. The House of Delegates will meet at the Americana Hotel.

AMA Woman's Auxiliary Program

Miss Ann Landers, author of the world's most widely syndicated newspaper advice column and a member of the AMA's Advisory Committee on Health Care of the American People, will be one of the featured speakers at the 46th Annual Convention of the Woman's Auxiliary to the AMA to be held July 13-17, at the Waldorf Astoria Hotel, New York City.

The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

DRUG ABSTRACTS

Diphenylhydatoin Pseudo-Pseudolymphoma

Sensitivity reactions to hydantoins occasionally produce signs and symptoms simulating malignant lymphoma. In the present case a 45-year-old man on diphenylhydantoin developed lymphadenopathy that histologically resembled malignant lymphoma. Adenopathy regressed when diphenylhydantoin was discontinued but subsequently recurred one and one-half years later as a fatal, malignant lymphoma. Lymphadenopathy associated with hydantoin drugs represents a spectrum of lymphoid reaction, both histologically and clinically. Lymphoid hyperplasia or microscopic "pseudolymphoma" may regress with cessation of hydantoin never to recur unless therapy is reinstituted. Frank lymphoma may occur that does not regress after therapy is stopped or, as in this case, lymphadenopathy may regress only to be followed by recurrence of fatal malignant lymphoma several years later. So far, despite the fact that all hydantoins may induce lymphadenoma, only diphenylhydantoin has been associated with malignant lymphoma.

Gams, R. A. et al.: USAF, MC, Dept. Med., USAH Hosp., Keesler AFB, Miss.

Phospholine Iodide

Anesthesia: Phospholine Iodide (echothiopate iodide-Ayerst) eye drops are widely used in the management of strabismus and for errors of refraction. The drug is a potent and relatively irreversible inhibitor of cholinesterase and considerable time is required after the drug is stopped for the red-cell acetylcholinestrase to return to normal levels (Clin-Alert No. 137, 1967). Patients suffering from a deficiency of this nature may be very susceptible to muscle relaxants such as succinylcholine. It is important that the anesthesiologist determine whether patients have been receiving Phospholine Iodide eye drops for extended periods, and for the ophthalmologist to be aware of the potential systemic effects of such topically applied medication.

Kinyon, G. E. (Dept. Anesthesiol., Mercy Hosp., San Diego, Calif.), New England J. M. 280:53 (Jan.) 1969.

Instant Formulas
Vitamin E Deficiency Syndrome

During a period of six months seven premature infants developed widespread edema, hemolytic anemia, reticulocytosis and thrombocytosis while receiving commercial feeding formulas having a high polyunsaturated fatty acid content and added iron. All of the infants were found to be suffering from vitamin E deficiency. The syndrome was responsive to orally administered vitamin E, 75 to 100 IU daily (as alpha-tocopherol acetate-"Aquasol"-USV Pharm. Corp.) given in three to four doses separately from other nutrients. The effectiveness and sufficiency of vitamin E in the diet is dependent upon at least two variables: (1) dietary ratio of vitamin E to polyunsaturated fatty acids and (2) inactivation of vitamin E by certain other nutrients (notably iron) in the digestive tract. Most commercial formulas consist of skimmed milk with vegetable oils as the fat source. Such formulas have a high polyunsaturated fatty acid content and a low vitamin E to fatty acid ratio. In addition, most commercial formulas contain added iron. Awareness and understanding should lead to the prevention of this syndrome. It is suggested that premature infants on commercial formulas be given 15 to 25 IU vitamin E daily, separately by mouth, as a prophylactic measure.—

Ritchie, J. H. et al. (San Francisco Gen. Hosp., San Francisco, Calif. (Dr. Moses Grossman), New England J. M. 279:1185 (Nov. 28), 1968.

This is a monthly series of drug information abstracts gathered from current articles and prepared by the pharmacists with the purpose of alerting you on drugs and/or their complications.

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SUBMUCOUS LIPOMAS OF THE COLON

Report on Five Cases

• Lipomas of the colon have been overlooked as an important part in the differential diagnosis of benign tumors of the colon. The five cases presented show the importance of correct diagnosis in the management of submucous lipomas.

Nabil F. Warsal, M.D.
Edgar R. Miller, Jr., M.D.

Lipomas of the gastrointestinal tract after adenomas are the most common truly benign tumors. Though classified by some as among the truly benign tumors, adenomas are considered by some pathologists as pre-malignant or early malignant lesions. Not much attention is given to the subject of benign colon tumors in standard textbooks of surgery and they have been looked upon by many investigators as being of little importance.

Lipomas are the most common of the intramural tumors of the colon. Their recognition is of great importance since they are benign tumors and can be easily removed by colostomy most of the time without resorting to major colonic resection. Because of this undeserved obscurity and the atypical clinical picture which these tumors produce, the preoperative diagnosis is seldom made and the treatment instituted is not always the most desirable. It should now be recognized that they occur frequently enough to include them in the differential diagnosis of all gastrointestinal tumors and as a causative factor of intestinal obstruction and intussusception.

Historical Data

As early as 1757, in his *Epistola de Mois Intestinorum*, Bauer recorded accounts of intestinal lipomas. This was followed by several reports about lipomas of the gastrointestinal tract by Cruveilhier, Hiller, Stetten, Odelberg, Thorek, King, Walkley, Paul, Comfort, Poston, and others.[1]

In 1909, Stetten[1] reported 72 cases of gastrointestinal lipoma, of which 32 were lipomas of the colon. Comfort[1] in 1931 reviewed the literature and reported 28 additional cases, making a total of 181 cases. Of these, 92 were lipomas of the colon, 65 of the small bowel and 22 of the stomach. He also emphasized the fact that these tumors tend to cause intussusception. In 1939 when Schottenfeld[1] added six more cases, the total number of cases of gastrointestinal lipoma was

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Dr. Warsal is Chief Surgical Resident; Dr. Miller is an Associate in Surgery, Wilmington Medical Center.

brought to 275. Of these 154 were in the stomach and small bowel and the rest were in the colon.

In the same year, Clagett[1] reported on a large lipoma of the cecum found in association with cholecystitis for which a right colostomy was performed at the time of cholecystectomy. Dewis stated that spontaneous expulsion occurs in about 20% of colonic lipomata. Ginsburg, Weingarten and Fischer[2] reported ten primary cases of lipomata of the colon encountered at laparotomy. An additional nine lipomata were found in association with carcinoma of the colon.

Long, Dockerty, and Waugh[1] reported 33 cases of lipoma of the large bowel found in more than 125,000 abdominal explorations. Of these, eight represented an incidental finding associated with carcinoma of the colon. One was associated with terminal ileitis and one with calculous cholecystitis. Twenty-five of the 33 patients presented with symptoms primarily related to the lipoma, an incidence of less than 0.002%. In more than 13,000 necropsies at the Mayo Clinic, pathologists reported 69 cases of lipoma of the colon (0.5%).

Pathology

Lipomas of the colon are well differentiated benign tumors composed of fatty tissue arising from depots of adipose connective tissue in the submucosa and subserosa of the bowel wall. The subserous variety usually originates from the appendices epiploicae and is usually pedunculated. This variety produces complications by direct compression or by traction on the pedicle, but rarely produces invagination.

The submucosal variety, on the other hand, commonly produces intussusception but rarely attains a large size. The subserous tumor may grow to the size of a child's head before it is recognized clinically. However, with submucous lipomas, after a period of years a pseudopedicle is produced by repeated contraction of the bowel and the mass will present as an intraluminal polypoid filling defect. Both submucous and subserous types may be present in the same patient. Multiple growths are most commonly submucosal.

The submucosal lipoma is covered by the mucosa and occasionally by the muscularis mucosa while the subserous variety lies directly under the peritoneum. In each, the covering constitutes the area of least resistance as the underlying muscular layer forces the growth toward the intestinal lumen or the lumen of the peritoneal cavity respectively. The mucosa covering the tumor may become atrophic, congested, ulcerated, or even necrotic, or may retain its normal yellowish appearance.

Lipomas are soft, elastic, rounded and usually multiloculated, and are frequently covered by a thin fibrous connective tissue capsule from which arise septae that divide them into lobules.

If the connective tissue predominates in the tumor, it is termed a "fibrolipoma." The cut surface is that of normal fatty tissue but secondary changes of inflammation, infarction or fibrosis may alter it.

The chief sites of origin are cecum, sigmoid flexure and hepatic flexure, in this order. Pemberton and McCormack[3] found 50 tumors in the right half of the colon, 15 in the transverse colon, and 37 in the left half of the colon and rectum.

Microscopically lipomata resemble normal fatty tissue but the lobules vary greatly in size and the supporting structure is irregular in distribution. Hemorrhage, erosion, and degenerative changes may occur with areas of fatty degeneration, cellular infiltration and edema. In some of the pedunculated forms, thrombosis and infection may occur producing cystic degeneration necrosis, ulceration or sloughing of the lipoma.

Symptoms

Many lipomata of the colon are asymptomatic and discovered at time of autopsy or during an operation for some other reason. They may be found in a patient with vague intestinal complaints. The tumor may be found because of complete colon examination including barium enema.

However, symptomatic lipoma may present with intestinal obstruction produced by the tumor itself or by intussusception. All varieties of obstruction may be met: acute, subacute, chronic, partial, complete, periodic, etc. Pain is the main symptom and it is usually colicky and recurrent in nature and may be just vague abdominal discomfort. Constipation or diarrhea, nausea, vomiting, rectal bleeding or melena may be present. The intestinal symptoms are often incited and aggravated by taking food and relieved by having a bowel movement. Mild anemia and weight loss may be an accompaniment. Finally a palpable mass may be found either on rectal examination, or by abdominal examination when there is intussusception.

Diagnosis

Because of the rarity of colonic lipoma, a positive preoperative diagnosis is seldom made. However, the eliciting of a typical history, the finding of a palpable mass and the discovery of an encapsulated submucosal lesion by x-ray should suggest the possibility of lipoma. Barium enema may show a lipoma on a pseudopedicle which appears as a sharply demarcated, smooth filling defect within the barium column. The defect is usually spherical or ovoid although occasionally it is irregular due to folding or lobulation of the mass. The sharpness and pliability of the tumor is sufficient to warrant the suspicion that the lesion is lipoma. This suspicion can be confirmed by demonstrating that the defect is soft and changes in shape in a remarkable fashion when the barium is evacuated. This is called the "squeeze sign" and has not been seen with other tumors. However, in the presence of inflammation as a result of periodic intussusception a lipoma may lose its original soft character and fail to change in shape.

Margulis and Jovanovich[4] suggested an ingenious method to make an unequivocal diagnosis of a lipoma of the colon. After the discovery of a suspicious filling defect on conventional barium enema examination, these authors recommend a second enema examination but with plain water, and spot films of the area where the defect was previously seen. These will demonstrate whether the lesion is lucent as compared with water and is the only way of proving the fatty nature of the mass.

In discussing colon lipomas, it must also be mentioned that it is not uncommon to find an excessive amount of fatty tissue within the ileocecal valve. In most instances, this accumulation of fatty tissue is not encapsulated and does not represent a true lipoma. Sometimes an enlarged valve may present as a globular or ovoid filling defect within the barium filled cecum. Occasionally such an enlarged valve may prolapse or produce minimal intussusception. The importance of a large valve lies in the difficulty of distinguishing it roentgenologically from other masses in this region, specifically carcinomas, and both conditions may coexist.

When a lipoma is seen through a proctoscope, its soft lobulated consistency and the yellow tinge of the mucosa overlying the tumor may lead to the correct diagnosis, but the changes secondary to a vascular disturbance frequently alter the appearance of the lesion.

With acute symptoms of short duration, as in Case IV which follows, it may be difficult to distinguish the situation from acute appendicitis, especially when the lipoma involves the cecum. In most cases, the preoperative diagnosis is that of recurrent partial obstruction of the bowel, and the presence of a tumor is rarely suspected.

Treatment

Treatment is strictly surgical. Local enucleation is frequently possible. When recent intussusception has made the bowel wall in the vicinity of the lipoma edematous and friable, segmental resection with end-to-end anastomosis is the procedure of choice. This is usually done under elective conditions with the bowel properly prepared.

Those patients with acute obstruction should undergo decompression and other supportive measures before any operation is performed. In cases with chronic recurrent intussusception there is marked induration and thickening of the bowel wall in the vicinity of the tumor and considerable induration in the lipoma itself. In such cases it is difficult to be sure that one is not dealing with carcinoma and colonic resection should be performed.

Sometimes excision of a pedunculated lipoma of the rectum can be accomplished through the proctoscope without too much risk.

Case Reports

Case I

A 70-year-old Negro woman was admitted with the chief complaint of abdominal pain and distention accompanied with nausea and vomiting. She had a history of left hemicolectomy for carcinoma of the sigmoid colon two years prior to this admission.

Examination revealed a distended abdomen with hyperactive bowel sounds and an incarcerated epigastric hernia which could be reduced easily. X-ray of the abdomen showed distended loops of small bowel with air fluid levels. The patient was treated initially with Levin tube and I.V. fluids and improved. It was then elected to study the patient before repairing the hernia. Upper G.I. series was normal. Barium enema showed no evidence of recurrent tumor at the suture line yet it showed a well-circumscribed filling defect at the ascending colon just above the cecum. This was interpreted as a benign tumor most probably lipoma.

Exploration was performed and a large submucous lipoma of the ascending colon was found. The latter was easily enucleated and the hernia was repaired. The postoperative course was uneventful.

Pathology report was lipoma of the ascending colon.

Case II

An 82-year-old white woman was admitted with the chief complaint of occasional bouts of diarrhea and what she described as a "nervous colon" which she had had for several years.

A barium enema was performed six months prior to this admission. This revealed a small filling defect of the ascending colon near the hepatic flexure described as a polypoid lesion. The patient was observed for six months and had a repeat barium enema just before this admission. This showed an enlargement of this filling defect.

Physical examination including rectal examination and sigmoidoscopy was normal.

The patient was explored and a submucous lipoma of the ascending colon was found. This was enucleated by incising the muscularis and leaving the mucosa intact. Incidental chronic calculus cholecystitis was found and a cholecystectomy was also performed. The post-operative course was uneventful and the patient was discharged on the seventh post-operative day.

Pathology report was lipoma of ascending colon.

Case III

A 45-year-old white woman had been treated for several years for what she described as "colitis" accompanied by diarrhea and mucus in her stools. A few weeks prior to her admission, she passed a large yellow mass by the rectum. She took this mass to her physician and this was pathologically reported to be a lipoma the size of an egg.

Subsequently, the patient's symptoms have ceased and a barium enema revealed an irregularity of the mucosa of the cecum at the site of the previously passed lipoma.

Case IV

A 62-year-old white man was admitted when, after consulting a gastroenterologist for symptoms of colitis, examination revealed two polyps in his rectum which were then removed through a sigmoidoscope. Barium enema showed a larger filling defect below the splenic flexure that was suggestive of a polyp. He had no symptoms of melena, no mucus in the stools, no pain and no dyspepsia. He had bowel movements usually twice daily sometimes associated with small amounts of bright red blood.

Physical examination was non-remarkable with normal abdominal findings. He was explored and a colostomy was done at the splenic flexure. A 3 cm tumor mass that was soft and well-circumscribed with no evidence of ulceration was removed. The mass had a broad pedicle about 1 cm in diameter. The mass was excised and the colostomy was closed. The post-operative course was uneventful.

Pathology report was lipoma of descending colon.

Case V

A 39-year-old white woman was admitted with back pain, and right lower quadrant pain of two months' duration. There were no urinary symptoms or gynecological complaints. The patient had a right nephropexy in the past. Examination revealed a palpable mass in the right lower quadrant which was slightly tender.

The patient was taken to the operating room for exploration. A large lipoma, four inches in diameter, was found in the cecum. The lipoma had encroached well into the lumen of the bowel and had occluded the appendiceal orifice resulting in a large mucocele of the appendix. Due to the involvement of the ileo-colic artery, the terminal ileum, cecum, and a portion of the ascending colon were resected with ileo-ascending colostomy.

Pathology report was lipoma of cecum mucocele of appendix.

Summary

1. Five cases of lipoma of the colon are reported, four in the cecum and right colon and one in the descending colon, emphasizing the predominance in the right side of the colon.

2. Four of the five cases were in women; the average age was 55 years.

3. The correct preoperative diagnosis was made in two cases with subsequent simple colostomy and enucleation of the tumor. There was one spontaneous expulsion, one patient diagnosed as an appendiceal abscess, and the fifth case diagnosed preoperatively as polyp.

4. The clinical findings and symptoms were not specific; yet abdominal discomfort, a colitis-like history and characteristic radiological findings were presented.

5. If diagnosed correctly preoperatively, simple colostomy and lipectomy can usually be done rather than a more extensive procedure.

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3. Pemberton, J., and McCormack, C. J.: Submucous lipomas of colon and rectum. Am. J. Surg., 37:205-216, 1937.
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THE LADIES

Only 7% of U.S. physicians are women. Alaska has the highest percentage of women doctors of any state (13%); Wyoming, the least (2%). Delaware counts almost 8%.

In Russia, 75% of all physicians are women. Other countries range from 16% (England) to 25% (the Philippines). Only South Vietnam, Madagascar, and Spain have fewer than the United States (6%, 5%, and 3%, respectively).

Pediatricians number one-fifth of their members in the United States as women. Women constitute 14% of all anesthesiologists, 12% of psychiatrists, and 5% of general practitioners, but less than 1% of general surgeons. Female urologists are even rarer (0.2%) than female orthopedists (0.5%).

Only 48% of the women physicians are self-employed as compared to 75% of the men. Of those who are married (and one in four is not), 56% are married to physicians.

More women physicians recommend medicine as a career for their daughters than do men physicians. The men feel women are discriminated against in medicine, but the women themselves do not complain that this is true. *(Patterns of Disease. Parke, Davis Co., Feb., 1968)*

CPC Wilmington Medical Center

The Case of a 72-Year-Old Woman with Hemoptysis, a Pulmonary Infiltrate, Rib Destruction, and Hypercalcemia

Prepared by: PATRICK ASHLEY, M.D.
Discusser: R. WALTER POWELL, M.D.
Pathologist: PARK W. HUNTINGTON, JR., M.D.

LEONARD P. LANG, M.D., *Editor*

Presentation of Case

A 72-year-old woman was admitted to the hospital with complaints of pain and tenderness in the area of the 8th rib on the left side.

She was known to have hypertensive cardiovascular disease and probably arteriosclerotic cardiovascular disease and had been followed in the General Medical Clinic for the past three to four years. At the time of admission, she was receiving Quinidine and Reserpine. She had had a chronic cough for the past four to five years. This had been productive of whitish non-purulent sputum and had not been associated with hemoptysis until about three weeks prior to admission when the patient brought up a moderate amount of dark red blood. Chest x-ray at this time revealed an irregularly marginated mass in the left midlung adjacent to the left hilum without evidence of calcification. Adjacent to it there was a density against the left lateral thoracic wall with some questionable associated destruction of ribs. The cortex of the left lateral 5th rib was not well demonstrated. There was slight blunting of the left costophrenic angle with perhaps some pleural thickening. The remainder of the lung field was unremarkable with no other evidence of bony abnormality. The heart was described as top normal in size with some uncoiling of the aortic knob. A chest x-ray performed in 1966 had been reported as normal. The patient smoked approximately one pack of cigarettes a day for the past forty years. Her appetite was good but there was some questionable weight loss. The patient was admitted to the hospital for elective diagnostic work-up following the abnormal chest x-ray report three weeks previously.

Physical examination revealed a thin, elderly woman in no acute distress. Bilateral arcus senilis was present with early cataracts. There was tenderness to palpation and percussion on the left side posterolaterally over the area of the 8th and 9th ribs. No palpable masses were noted. The lungs were clear to percussion and auscultation. The heart rhythm was irregular but no murmurs were heard. The liver was felt 4 cm below the right costal margin and it was tender but no nodules were detected. The spleen was not palpable. Neurological examination was within normal limits except for what appeared to be a mild left facial weakness. The patient was alert and cooperative. The temperature was 98.8 F; the pulse 60 and irregular; and the respirations, 20. The blood pressure was 120 systolic and 80 diastolic.

Urinalysis revealed numerous WBC's/hpf

Dr. Ashley is Senior Pathologist; Dr. Powell is Assistant in Department of Medicine; and Dr. Huntington is Senior in the Department of Pathology, Wilmington Medical Center.

Dr. Lang is Senior Physician, Department of Medicine, Wilmington Medical Center.

with many calcium oxalate crystals. The specific gravity was 1.014. The hematocrit was 42%; hemoglobin, 13.1 gm/100cc; and WBC, 8,900 with 59% neutrophils, 2% eosinophils, 33% lymphocytes and 6% monocytes. Repeat studies the following day revealed 10-15 WBC/hpf in the urine. The hematocrit was 41%; hemoglobin, 13.4 gm/100cc; and WBC, 8,100. The urine culture showed no growth after 48 hours. A chemistry profile revealed calcium 13.7 mg/100cc; phosphorous, 2.7; glucose, 85; BUN, 25; uric acid, 12.2; total bilirubin, 0.6; and cholesterol, 357 mg/100cc; protein, 7.3 gm/100cc with albumin, 3.35 gm/100cc. Alkaline phosphatase was 109; LDH, 188; and SGOT, 17 units. The Kolmer-Wasserman was weakly reactive. X-ray examination of the ribs revealed destruction of the axillary portion of the left 5th rib. Chest x-ray revealed a large mass in the superior segment of the left upper lobe, essentially unchanged from the examination some three weeks previously. However, the pleural reaction about the destruction of the left rib had increased. The right lung remained clear. An electrocardiogram was abnormal showing marked myocardial irritability with evidence of bigeminy and multiple premature contractions which appeared to be unifocal in origin. The basic heart rate was 75 per minute and the P-R interval measured 0.18 sec. There was no evidence of acute myocardial damage.

On the seventh hospital day, the serum calcium was 12.5 and serum phosphorus 2.9 mg/100 cc. Uric acid was 14.1 mg/100 ml. A 24-hour urine volume was 810 cc with a total calcium, 159.6, and phosphorous, 476.3 mg.

Three sputum examinations for malignant cells were reported as negative (Class I). Radiological survey of the axial skeleton and long bones revealed no additional destructive lesions other than that visualized in the 4th rib and possibly the 5th rib. Considerable vascular calcification in the abdomen, pelvis and lower extremities was noted in this study.

Repeat chest x-ray examination on the 12th hospital day revealed the soft tissue mass beneath the partially destroyed left 5th rib to be about the same in size. The infiltration in the superior segment of the left upper lobe appeared to have decreased somewhat in size. No new disease was identified with the possible exception of some additional infiltrate in the left lower lobe laterally. A pleural biopsy under local anesthetic was performed in the region of the left posterior axillary line between the 7th and 8th ribs. Pathological examination revealed a few fragments of striated muscle fibers but no pleural tissue was present.

On the 20th hospital day, the patient was scheduled for an open pleural biopsy. This was cancelled because of a definite change in the patient's sensorium with evidence of confusion and motor difficulties. She was completely disoriented as to time and place and was seemingly lethargic with psychomotor retardation. There were no focal neurological signs. A generalized coarse tremor of the extremities was noted and the patient had difficulty with balance and gait. The deep tendon reflexes were normal and no pathological reflexes were elicited. There was no sensation loss. The facial weakness noted at admission was essentially unchanged. An electroencephalographic examination revealed an abnormal tracing with diffuse slowing and disorganization suggestive more of a diffuse process rather than a localizing phenomenon. A spinal fluid examination revealed clear, colorless fluid with no cells apparent on microscopic examination. Glucose was 83 mg/100cc, chlorides 117 mEqL1 and protein 49 gm/100cc. The Kolmer-Wasserman was non-reactive and colloidal gold was negative. Cytological examination of the spinal fluid revealed no abnormal cells. On the 25th day, the patient was described as stuporous, and taking only small amounts of fluid. Urinary output was minimal. The patient's temperature, which had been normal since admission, was now 101 F. She continued to be febrile and comatose and expired on the 29th hospital day. Laboratory studies shortly before she died revealed BUN 160, calcium 15.7, phosphorus 3.4, creatinine 7.0, and uric acid 10.5 mg/100 ml.

During admission, the following medications were administered: Reserpine, 0.25 mg, three times a day; Quinidine, 200 mg, twice a day;

Hydrodiuril, 50 mg, daily. These were administered from day 1 to day 29 but on the eighth day, the Quinidine was increased to 200 mg, three times a day and the Hydrodiuril decreased to 50 mg every second day. Allopurinol, 100 mg, three times a day, was given from day 10 to day 29 and Procaine Penicillin, 1.2 mu, twice a day, from day 8 to day 13.

Discussion

Today we will talk about a 72-year-old woman with rib tenderness on the left side. She had heart disease of a hypertensive and probably arteriosclerotic nature producing whitish non-purulent sputum but recently producing blood.

At this point we wonder if there might have been a pulmonary infarct with resulting pleurisy in a woman who seems to be a perfect candidate for this. However, the report of the chest x-ray changes our direction of thinking to consideration of various tumors because of the uncalcified mass in the left midlung and the rib destruction not present in films made at least a year prior to the present.

Associated questions we might ask are quickly answered in that she had not lost significant amounts of weight but had been a long-time smoker of cigarettes.

On physical examination, the abnormalities could all be explained by known disease processes — the eye signs of arcus senilis and cataracts being associated with arteriosclerosis, and the irregular heart rhythm and facial weakness being secondary either to arteriosclerosis or hypertension. The one unexplained finding is the enlarged liver.

The CBC is not remarkable. The urine is essentially normal except for multiple WBC's which in the face of a normal urine culture cannot be too significant. There are calcium oxalate crystals but nowhere do we find evidence historically of renal calculi.

Until now we have described an elderly woman with advanced vascular disease and a probable lung tumor. Now we find that she had a serum calcium of 13.7, a phosphorus of 2.7, albumin of 3.35, alkaline phosphatase of 109, and a weakly reactive Kolmer-Wasserman. Let me dispense with this last; first, she might have lues but I think the finding is more likely due to the large amount of globulin present and unlikely to be a major consideration in this case as confirmed by a negative CSF serology.

The rest of the case history presents few surprises for a CPC. A search for possible tumor diagnosis was unrewarding; namely, x-rays of long bones, sputum examination, pleural biopsy, and spinal fluid cytology. The chest pictures of the 4th and 5th rib destruction remain unchanged. The termination of her illness was seen as a metabolic type of CNS picture with terminal uremia.

Differential Diagnosis

Now we must decide what is happening. An appropriate starting point is to remind ourselves of a differential diagnosis of hypercalcemia which includes:

1. High intake of calcium
2. Vitamin D ingestion
3. Milk alkali syndrome
4. Acute osteoporosis of disuse
5. Immobilization
6. Hyperthyroidism
7. Adrenal insufficiency
8. Sarcoidosis
9. Multiple myeloma
10. Metastasis to bone
11. Hyperparathyroidism

Of the above I think we need concentrate only on the last four. The first three depend on abnormal food patterns, the fourth and fifth on immobility and perhaps associated Paget's disease which she most likely did not have, and hyperthyroidism and adrenal disease could not be diagnosed from information given here. I suppose the cardiac irregularities could be a result of hyperthyroid disease but we certainly can not build a case for it in the view of the rest of the clinical and laboratory picture.

Our real differential rests among three: hyperparathyroidism, sarcoidosis, and malignancy. Let us consider Table 1.

TABLE I

	Blood					Urine	
	Ca	Ph	Alk PO_4	Total Prot.	BUN	Ca	Max. U. S.G.
Hyperparathyroidism	↑	↓N	N↑	N	N↓	↑N	↓
Sarcoidosis	↑	↓N	N↑	↑	N	↑	↓
Multiple Myeloma	N↑	N↑	N↑	↑	↑	↑	—
Malignant Neoplasm with Osseous Metastases	N↑	N	N↑	N	N	↑	N
Malignant Neoplasm without Osseous Metastases	↑	↓N	N↑	N	N	N↑	↓

Although the bone changes of sarcoid are usually found in the hands and feet and thus would not fit our patient, a high alkaline phosphatase and high globulin level would. There is no mention of the typical lung changes with adenopathy in our case so I am going to disregard sarcoid.

If we are dealing with a straight-forward case of hyperparathyroidism, I have trouble explaining a malignant-looking bone lesion as well as the high protein level. Therefore, I propose we regard this lesion as a malignant one.

Radiology Discussion

HERMAN STEIN, M.D.:

A chest x-ray obtained approximately three weeks prior to admission demonstrates a large nodular infiltrate in the left mid-lung and extra pleural soft tissue mass nearby in the lateral thoracic wall, destroying a portion of the left fifth rib. (Figure 1) A film taken almost one month after admission reveals a significant decrease in size of the infiltrate in the left mid-lung and a corresponding increase in size in the extra pleural mass which is now more clearly seen destroying the fifth rib. The change in the mid-lung density suggests that it may represent an inflammatory infiltrate rather than a large tumor mass. (Figure 2) A lateral skull film obtained as part of a bone survey approximately one week after admission, shows several small radiolucencies without sclerotic margins noted over the calvarium. These may represent lytic metastases or simply small venous channels, a normal finding. (Figure 3)

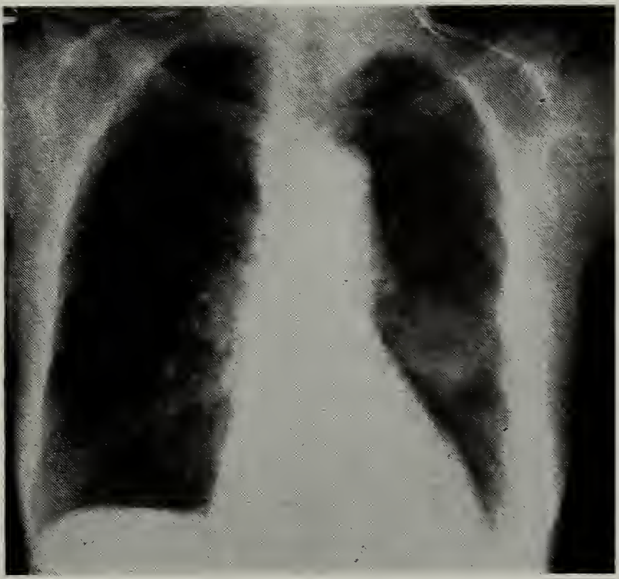

Figure 1

Dr. Stein is Assistant, Department of Radiology, Wilmington Medical Center.

Dr. Powell:

Allbright and Reifenstein[1] in 1941 first suspected that tumors other than parathyroid would produce a substance like parathyroid hormone.

About eight years ago a parathyroid hormone radio-immunoassay was described and there were found increased levels of the hormone in some cases of bronchogenic carcinoma even without an associated uremia and with normal calcium.

In the American Journal of Medicine of 1964,[2] there were listed several tumors which produced PTH-like substances. The most common of these was hypernephroma, followed by renal adenocarcinoma, bronchogenic carcinoma, squamous cell carcinoma of the vulva, and endometrial carcinoma. In at least one case of renal adenocarcinoma with lung metastases, a PTH-like substance was found in both the primary renal tumor and the lung metastases. The authors thus encourage the performance of a chest x-ray and intravenous urogram in all cases of hypercalcemia.

A parathyroid carcinoma might metastasize to regional lymph nodes, lung, bone, and liver, and so produce the picture seen here. This could well be a parathyroid carcinoma.

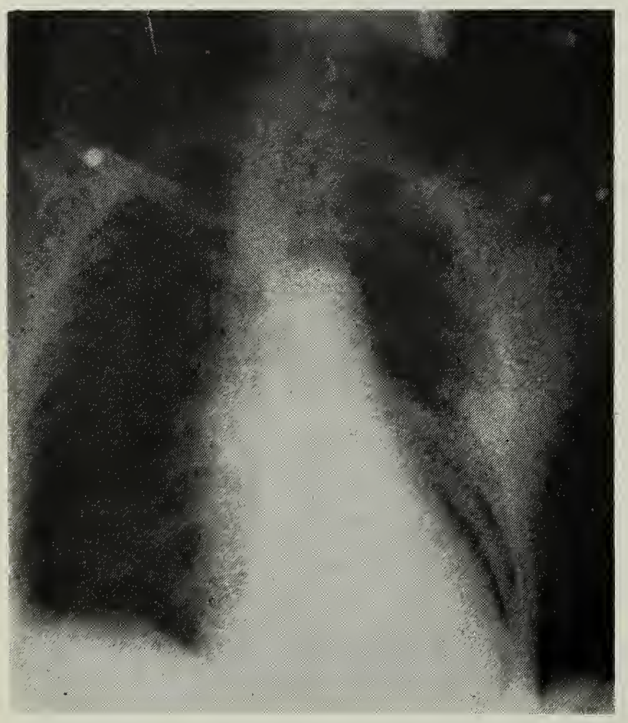

Figure 2

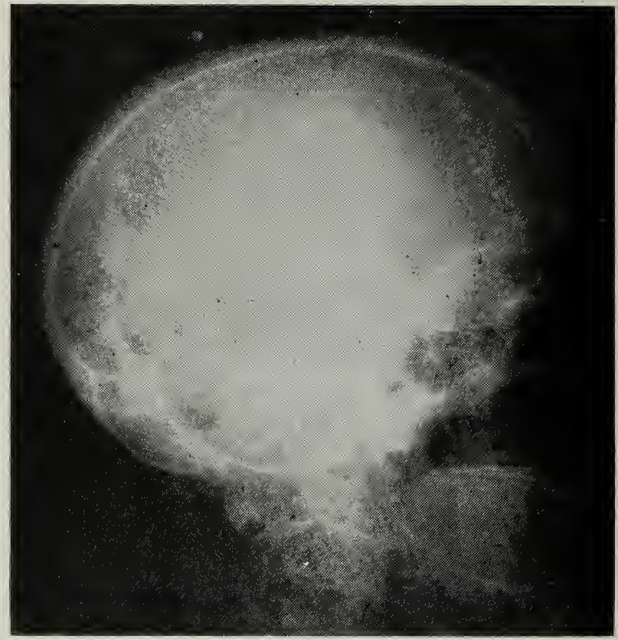

Figure 3

There have been reports of ectopic production by tumors of substances with biological activity similar to ACTH, ADH, erythropoietin, TSH, insulin glucagon, gonadotropins and parathyroid hormone.[3] Thus with malignancy, we must be aware of the broad spectrum of hormone-induced complications which might be encountered.

We must consider these possibilities in our case. Since she was a smoker, bronchogenic carcinoma is a suspect but is somewhat too obvious. Statistically renal tumor would be a strong contender but we have no dye outlines of the kidney.

But if she has any of these tumors, why are there the protein reversal and high uric acid without uremia? There is no specific mention of urinary protein but I presume it was absent. Notwithstanding that fact, I think the most inclusive diagnosis here which would be consistent with all the data is multiple myeloma. Urinary protein is not necessary in myeloma, especially in the pure heavy chain types. In addition, I think I see lytic lesions in the skull. I wonder further whether the cardiac irregularities, while consistent with a hypercalcemia, could be due to a secondary amyloid infiltration.

Dr. Powell's Diagnoses:

1. Multiple myeloma
2. Metastatic disease from some distant obscure primary
3. Sarcoidosis

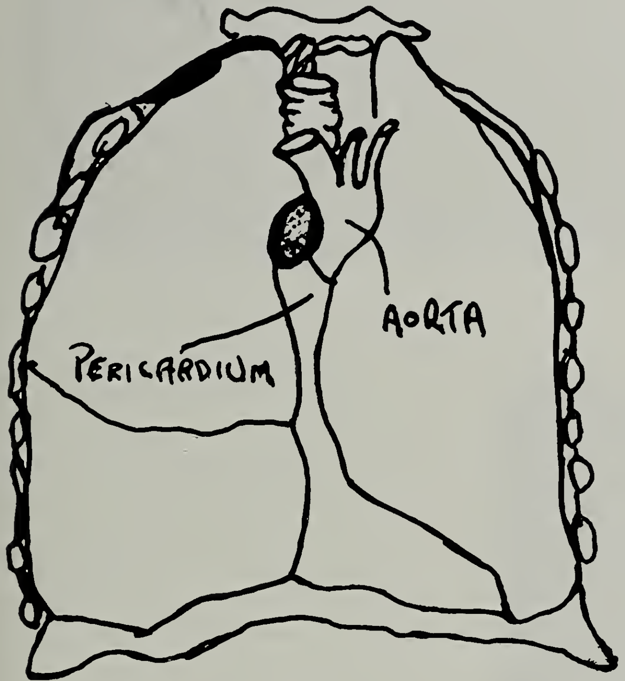

Figure 4. Site of Mediastinal Tumor

Pathological Discussion

Dr. Huntington:

From the clinical history presented prior to the autopsy, we were expecting to find a bronchogenic carcinoma with cerebral metastases. However, neither of these was present.

The lung showed an absence of gross tumor. Instead, an area of pneumonia of the left upper lobe adjacent to the visceral pleura was found near the region of a tumor of the left fifth rib. This tumor measured approximately three centimeters in diameter and expanded the rib in a symmetrical ovoid fashion. On sectioning, it showed considerable necrosis but appeared neoplastic in origin.

The other abnormal finding was a tumor of the anterior superior mediastinam which was located just superior to the pericardial sac. This was an irregularly lobulated mass which was somewhat adherent to the surrounding mediastinal tissues and on sectioning, was pale tan in color and showed fine lobulation with homogeneous appearance throughout all cut sections. Microscopic sections showed this tumor to be composed of cells with spindle-type nuclei and little cytoplasm arranged in a trabecular fashion. The cells were tightly aggregated in a homogeneous pattern.

The lesion in the left fifth rib showed considerable necrosis. The surrounding viable cells had small, dark nuclei of anaplastic pattern which therefore appeared to be secondary carcinoma in the bone.

Correlating these findings the following statements can be made:

(1) A lobar pneumonia of the left upper lobe of the lung was present.

(2) The mediastinal tumor was consistent with the patterning of a parathyroid carcinoma.

(3) Two other parathyroid glands were sectioned and found to be normal histologically for a patient of this age.

(4) The rib lesion was a metastasis from the parathyroid tumor just described. This could conceivably account for the hypercalcemia that was present terminally and which was thought to be responsible for the patient's death.

Anatomical Diagnoses:

(1) Parathyroid carcinoma

(2) Secondary carcinoma of left fifth rib, probably of parathyroid origin

(3) Hypercalcemia

These sections were sent to Dr. Benjamin Castleman, Professor of Pathology at Harvard Medical School, whose work in the field of parathyroid neoplasms is well known. His impression was that the mediastinal tumor represented an unusual patterned thymoma and that the lesion in the rib was secondary to a bronchogenic carcinoma that was so small that it was not grossly located.

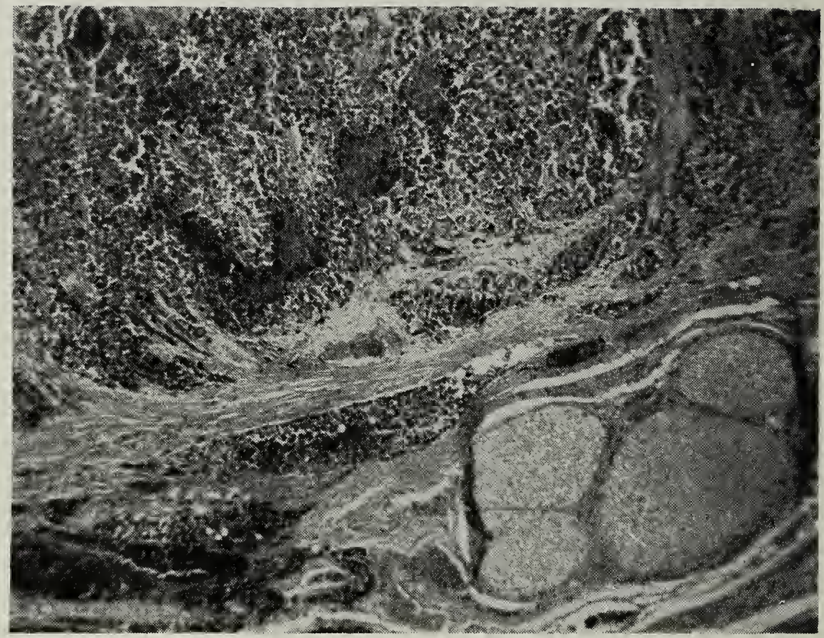

Figure 5
Mediastinal Tumor (100x)

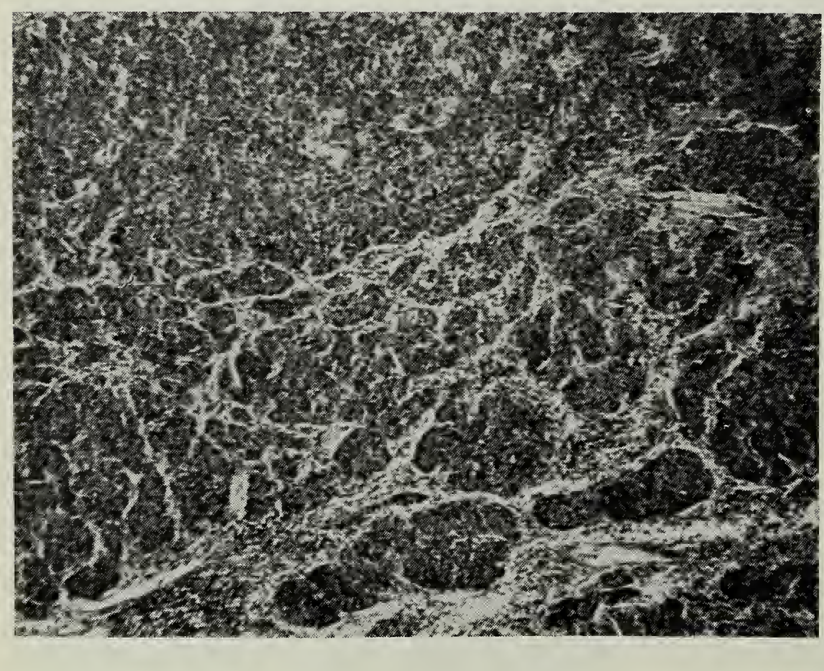

Figure 6
Metastatic Rib Lesion (100x)

The possibility that hypercalcemia may occur with varied types of neoplasms, particularly malignant ones, has been recorded in the literature. These neoplasms vary from bronchogenic carcinomas to uterine malignancies. In this patient, if Dr. Castleman's interpretation is the correct one, the hypercalcemia would be explainable on this basis rather than on the basis of parathyroid disease.

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EPIDURAL ABSCESS

• This case presentation exemplifies unusual symptoms and varied pathophysiological alterations associated with an epidural abscess. Despite relatively early diagnosis and vigorous neurosurgical management, the patient succumbed after a fulminating course.

Mark Hurm, M.D.

Infections of the spinal epidural space are rarely encountered in clinical practice, but it is important to review this problem because of the very high mortality rate which results when the condition is either untreated or treated late in its course. Prompt early recognition of an epidural infectious process can be life-saving, not to mention the desirability of avoiding the frequent paraplegia which occurs in the patients who do survive. Once epidural infection is recognized, therapy with antibiotics and surgical drainage of the abscess cavity is necessary. We are presenting a case in which these measures were carried out. Our patient nevertheless died, but it is hoped that future fatal outcomes may be avoided if epidural abscess is kept in mind when patients with similar complaints appear.

Case Report

This was the first hospital admission for this 49-year-old male fabric-mill worker who was in apparent good health until three days prior to admission when he developed abdominal distension not associated with anorexia, nausea, vomiting or melena. There had been no weight loss but he had experienced dull lower left chest pains and had a cough which was productive of yellow sputum.

On admission he denied any past or present history of pain in his back or lower extremities.

Physical Examination

Physical examination on admission revealed a somewhat obese Negro man appearing his stated age and in no apparent distress. Blood pressure was 210/120 mm Hg, pulse 110, respiration 20, and temperature 102 F. The pertinent physical findings were limited to a few scattered rales in the left posterior base. Examination of the heart revealed a normal sinus rhythm without murmurs. PMI was 1 cm to the left of the MCL in the 5th intercostal space.

There was no abdominal tenderness or palpable masses or organomegaly. The femoral pulses were full and equal bilaterally. Rectal examination revealed a normal prostate and normal stool.

Neurological examination revealed a coherent, well-oriented man without any apparent neurological deficits.

The admission hemogram revealed a WBC of 22,700 with 73% segmented leucocytes, 8% stabs, 17% lymphocytes, 1% basophils and 1% eosinophils. The hemoglobin was 11.2 gm/100 cc and the hematocrit was 40%. The serum sodium was 136; potassium, 4.6; and CO_2, 42 mEq/1. Blood PH was 7.47. Admission blood sugar was 356 and BUN, 49 mg/100 ml.

Shortly after admission surgical consultation was obtained, the consultant agreeing that the patient was experiencing an adynamic ileus. This was treated conservatively

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Dr. Hurm, an Assistant in the Department of General Practice, Wilmington Medical Center, is in private practice, Newark, Delaware.

with nasogastric suction and I.V. fluids.

During the next 24 hours the patient experienced no difficulties other than that he became unable to void. Examination of the abdomen showed a markedly distended urinary bladder; catheterization delivered 3500 cc of normal colored urine. Following catheterization there was slight decrease in the abdominal distention.

Approximately 36 hours after admission, the patient began to experience an elevation of temperature of 102 F but had no complaints of headache, chills, nausea or other symptoms referable to his central nervous system.

Approximately 12 hours later, the patient's temperature rose to 105 F and he had associated chills. Re-examination at this time demonstrated marked nuchal rigidity and a flaccid right lower extremity with loss of deep tendon reflexes. At this time he was also noted to be lethargic and incoherent.

Lumbar puncture was attempted at the L3-L4 interspace but no fluid was obtained. Another attempt was made at L4-L5 but before entering the subarachnoid space a thick green foul smelling fluid was aspirated. Following this aspiration the diagnostic impression became epidural abscess. The etiology of the abscess was unknown and a review of the abdominal films at this time showed a normal appearing lumbo-sacral spine. Gram stain of the fluid obtained on puncture revealed gram positive cocci and there was some suggestion on stain that acid fast bacilli might also be present. Staphylococcus aureus, coagulase positive was cultured at surgery.

The patient was then treated with Isoniazid, Streptomycin and Cephalothin. In the evening of November 9, 1968, the patient underwent an emergency laminectomy with drainage of a large epidural abscess containing thick pus. The abscess extended from the area of L1 through and including L4.

The following morning the patient's neck was still rigid and the deep tendon reflexes were absent in all extremities. There was no motion on painful stimuli. Steroid therapy was initiated at this time because of the strong suspicion of tuberculous meningitis. During the next 24 hours his condition remained somewhat the same, but by the second postoperative day he would respond to verbal commands by moving his eyelids and grasping the examiner's fingers.

On the tenth postoperative day his hemoglobin was found to be 4.0 gm/100 cc with hematocrit of 15%. Several hours after these results were known, he began to have massive amounts of loose, dark, tarry stool mixed with bright red blood. Whole blood transfusions were started immediately with a rise in hemoglobin to 8 gm/100 cc during the next 24 hours. However, the massive bleeding continued and the patient required 5 to 6 units of blood daily to maintain his hemoglobin at 6 to 8 gm/100 cc. Intubation and cooling of the stomach were attempted with intermittent cessation of bleeding. Hematological evaluation at this time denoted 40,000 platelets; hemoglobin, 8.2 gm/100 cc.; hematocrit, 26% and no evidence of jaundiced plasma. The patient's prothrombin time was 17.8 seconds (control, 12.5 seconds). PTT was 91 seconds (control, 65 seconds). There was good clotting with no evidence of clot lysis. The impression at this time was thrombocytopenia secondary to transfusion washout.

After 25 mg of vitamin K intravenously, and further transfusion with fresh blood and platelet packs, the patient's bleeding ceased. During the next 48 hours, the hemoglobin was maintained at 7 to 8 gm/100 cc.

On the fifteenth postoperative day urinary output abruptly diminished to 20 from 30 cc every 12 hours. Despite hydration, digilization and other supportive measures, there was no improvement and the patient expired the next day. BUN rose to 100 mg before death.

Significant post-mortem findings included multiple small ulcerations of the gastric mucosa and renal picture consistent with lower nephron nephrosis which was presumed to be the immediate cause of death. Spinal fluid culture at post-mortem grew out *E. coli* but no staphylococcus.

Discussion

A review of the anatomy of the epidural

space reveals that it lies between the periosteum of the vertebral bodies and the disc itself. Anteriorly the two layers are closely approximated but posteriorly a true epidural space appears, filled with fat and a plexus of veins. The posterior epidural space varies in depth. It is almost nonexistent in the cervical region, about 0.5 cm beneath the dorsal vertebrae, and largest in the lumbar region and it is for this reason that most epidural infections occur in the lumbar or dorsal regions.

The pathogenesis of epidural infections involves either the spread of a local infection (from an overlying furuncle, decubitus ulcer, or perinephric abscess) or, in the greatest majority, from bloodborne infections. Of 88 cases culled from the literature by Browder and Meyers[1], 72 were thought to be bloodborne since no obvious local infection was found. Staphylococcus was cultured from 15 of the 72 cases. In Heusner's[4] series of 20, 75 per cent resulted from infections outside the epidural compartment; *Staphylococcus aureus* was recovered from the epidural space in all but one patient. Fifty per cent of the metastatic sources in his series were found to be furuncles. Osteomyelitis in the vertebrae adjacent to the epidural infection was found in 33%, probably secondary to the original bloodborne infection.

The clinical events in an evolving epidural abscess reoccur in a familiar sequence. Usually it is possible to obtain a history of preexisting illness, ranging from an upper respiratory infection now subsided, to either a distant or a local furuncle. Within the next ten days or two weeks a dull deep pain in the lumbar region occurs, accompanied by malaise and fever of varying degrees. A few days later the first neurological symptoms appear as a result of pressure or irritation of the nerve roots underlying the region of the abscess. The pain with a lumbar abscess takes the form of either sciatica or pain felt along the path of the femoral nerve roots. Over the next few days, further signs of nerve compression appear, including paresthesiae, numbness, and loss of sphincter control. Finally, paralysis of the lower extremities takes place.

An unusual feature of the present case was the abdominal pain and distention which presented early without other neurological deficits. Browder and Meyers[1] are alone in noting the finding of abdominal distention and paralytic ileus as an accompanying symptom in acute cases. In the case under discussion, paralytic ileus was the presenting finding with urinary retention following within twenty-four hours. Still another twenty-four hours passed before weakness of the lower extremities occurred.

Laboratory Tests

Leukocytosis of varying degrees may be found, but Hirson[5] cautions that the white count may be entirely normal. In five out of six cases he found this to be true but noted that the sedimentation rate was uniformly and markedly elevated, ranging between 60 and 120 mm per hour. X-rays of the vertebral column may reveal osteomyelitis, but in the majority of cases reviewed in the literature by Browder et al,[1] Grant,[3] and Hirson[5] x-rays of the lumbosacral spine were normal.

The diagnostic test of greatest importance is the spinal tap. However, in a patient with a history similar to ours, the tap should be done with great care in order to avoid producing spread of the infection from the epidural into the subarachnoid space, thus creating a meningitis. The spinal needle should be introduced in small steps, with aspiration at each level. If yellowish, thick fluid appears in the syringe, the diagnosis is obvious and further introduction of the needle is contraindicated.

Spinal tap carried out below the area of an abscess may be expected to show xanthochromia, an increase in protein, and from 50 to 1,000 cells per cubic mm (Browder and Meyers[1]). Usually, both polymorphonuclear cells and lymphocytes are found. Spinal fluid sugar is normal, as is CSF culture. The Queckenstedt Test is often positive, as is the case in other suspected cases of spinal cord compression, but this should only be carried out if facilities for myelography and prompt decompression of the cord are available.

Entities to be excluded in the differential diagnosis of epidural abscess are herniated lumbar disc, extradural tumor, acute polyneuritis, and transverse myelitis. Subdural abscess has been reported rarely (Freedman & Alpers)[2] and may give symptoms and signs similar to an epidural abscess. Tuburculous epidural abscess must be considered, but the course is usually more insidious, and the chest x-ray would be expected to show evidence of tuberculosis.

The treatment of an epidural abscess is directed towards immediate surgical decompression accompanied by appropriate antibiotic therapy. Nevertheless, the ultimate prognosis is poor with mortality approaching 60% in the pre-antibiotic era, and 30% since (Hirson,[5] and Heusner[4]). In addition, there is the danger of permanent paraplegia in surviving patients. In Heusner's[4] series of 20 patients, total recovery resulted in patients who had no paralysis before operation or who had had paresis of less than 36 hours' duration. Fifty percent of patients who had been paralyzed for forty-eight hours or more went on to permanent paraplegia or death. Prompt operation is thus imperative.

Browder and Meyers[1] speculate that the signs of cord or root compression are produced by wide-spread thrombophlebitis of the epidural veins leading to obstructive edema and ischemia of the cord or cauda equina. Pathological verification of this theory is rare, but Freedman and Alpers[2] reported two autopsy cases of subdural abscess in which congestion of the extra-medullary blood vessels was found with infiltration of the blood vessel walls by leukocytes and macrophages. Veins were more affected than arteries and in some cases their normal structure was almost obliterated.

Summary

A case of spinal epidural abscess has been presented, with an unusual aspect of the case being the early occurrence of paralytic ileus and urinary retention. The importance of early recognition and treatment of this process is stressed so that resultant paraplegia or death may be avoided.

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PROPOSALS RELATING TO THE EDUCATION OF YOUTH IN PENSILVANIA

Benjamin Franklin (Published by the Author, 1749)

The good Education of Youth has been esteemed by wise Men in all Ages, as the surest Foundation of the Happiness both of private Families and of Common-wealths. Almost all Governments have therefore made it a principal Object of their Attention, to establish and endow with proper Revenues, such Seminaries of Learning, as might supply the succeeding Age with Men qualified to serve the Publick with Honour to themselves, and to their Country.

. . . That to keep them in Health, and to strengthen and render active Bodies, they be frequently exercised in Running, Leaping, Wrestling, and Swimming, etc.

. . . As to their Studies, it would be well if they could be taught every Thing that is useful and every Thing that is ornamental: But Art is long, and their Time is short. It is therefore proposed that they learn those Things that are likely to be *most* useful and *most* ornamental. Regard being had to the several Professions for which they are intended.

. . . The Idea of what is true Merit, should also be often presented to Youth, explained and impressed on their Minds, as consisting in an Inclination joined with an Ability to serve Mankind, one's Country, Friends and Family; which Ability is (with the Blessing of God) to be acquired or greatly encreased by true Learning; and should indeed be the great Aim and End of all Learning.

CLIMATOLOGY AND MEDICINE

Article II

Lewis B. Flinn, M.D.

In Article I of this series, the climatic changes coincident with developments of early civilization were summarized. For a long, long time medicine was largely practiced by priests of the local religion. Imhotep is the earliest known physician (Figure 2[1]). He was architect, scribe, priest and astronomer. He built the step pyramid at Sakkara, near modern Cairo, the oldest stone structure in the world. He was also physician to the king and when he died, was glorified as god of medicine and later accepted by the Greeks as Aesculapius.

For the next thousand years the weather was comparatively cold, stormy and stimulating throughout all the regions where man dwelt. This was the Age of Troy, of the Chang Dynasty in China, and the heyday of the Minoan Kings of Crete. Stonehenge was built in Britain. The Hyksos invaded Egypt, and the Arians invaded India.

From 1500 to 1200 B.C. was a warm, dry period in which no great activity occurred. It was the time of the Hebrew bondage in Egypt. Priestly medicine was practiced generally.

From 1200 to 250 B.C. was a cooler, more moist era. This was the time of the Theban kings in Egypt, the Assyrian Empire, the time of David and Solomon, the golden age of Phoenicia, the time of the Vedas and the Upanishads in India, and the beginning of Hinduism. The second Babylonian Empire was at its height from 612 to 538 B.C.; the golden age of Athens with Socrates and Hippocrates about 400 B.C., and from 450 to 250 B.C., the Roman Empire extended throughout Italy. Buddhism and Confucianism began. When Alexander the Great conquered Egypt in 322 B.C., Alexandrian medicine was at its height, at which time there were many cyclonic storms in Egypt. These storms were not rain but wind and cooler temperatures.

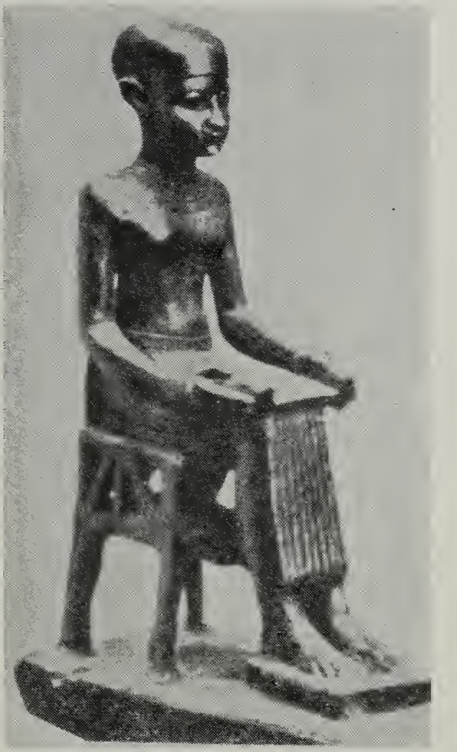

Figure 2

Statuette of Imhotep, physican-architect-priest, dating from about 2950 B.C. In Louvre, Paris.

Editorial comments appear
on page 198

A warm, dry period extended from 250 to 100 B.C. during which there were famine and malaria in Rome and the decline of Greece began.

From 100 B.C. to 200 A.D., the climate was again moist, cool and more stimulating. This was coincident with the onset of the Christian era. In Rome there was great activity. Virgil was in his prime.

During the period 200-500 A.D., the weather was again dry and warm. The population of Palestine dropped from 9,000,000 to 3,000,000. The Mongols swept over China. Barbarians from the north drove south bringing the fall of Rome in 476.

Dr. Flinn is Honorary Physician, Department of Medicine, Wilmington Medical Center.

[1] M.D. Magazine: July, 1959, p. 97.

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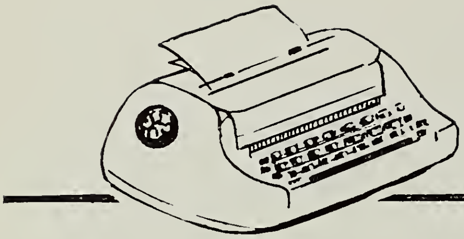

Special Reports

SERVICE AS A VOLUNTEER PHYSICIAN FOR VIET NAM

William Wright, M.D.

Volunteer Physicians for Viet Nam (VP/VN) is a program for supplying medical care to the civilian population of South Viet Nam through the volunteer services of U. S. physicians.

To understand the background of the need for this program, one has to go back 25 years. During this period, war and insurrection have placed tremendous health burdens on the people of South Viet Nam. War injuries, disruption of public health measures, and a drain of physicians into military service have been superimposed upon existing problems of endemic disease and malnutrition. Of the nation's 1000 physicians (approximately), about two-thirds are in the military service, leaving only 300 to 350 Vietnamese physicians available for the care of 16 million people. This number of physicians can be found in one average American city of 100,000 persons alone.

By 1965, the lack of medical personnel reached emergency proportions and the Vietnamese authorities asked American physicians to volunteer their help at this crucial moment in Vietnamese history. Out of this request grew a program called *Project Viet Nam* which was financed by the State Department's Agency for International Development (USAID) and administered by the People-to-People Health Foundation, Inc. The AMA assisted in the establishment of the project and in the recruitment of volunteers. In 1966, the AMA took over full administrative responsibility, with financial support still maintained by USAID.

From August, 1965, when the first participant in this program, Doctor Richard E. Perry, an orthopedic surgeon from St. Petersburg, arrived in Saigon, until August, 1968, 500 volunteers completed a tour of South Viet Nam, some for their second and third times. Physicians sent to South Viet Nam under this voluntary program serve a tour of duty of at least 60-days' duration in one of 21 provincial civilian hospitals. The volunteers work with teams of U. S. military physicians, with foreign volunteer surgical teams, which serve for one year, and with USAID personnel (nurses, administrative officers and doctors), who serve for one and one-half years.

To keep hospital staffs at full strength, thirty-two volunteers must be sent to Viet Nam every 60 days. General practitioners, general surgeons, internists, opththalmologists, orthopedic surgeons, pediatricians, and preventive medicine specialists are needed, with the greatest demand being for general and orthopedic surgeons to treat war-related civilian casualties.

The AMA gives full assistance in arranging immunizations, passport and visa applications, transportation, housing, insurance, etc. All costs are paid by USAID with an expense allowance of $10 per day.

I became interested in the VP/VN program while reading about this and other volunteer programs such as AMDOC over the last several years. A plea for more VP/VN volunteers in the *AMA News* finally caused me to write for further information in the fall of 1967. By April, 1968, I was on my way to Viet Nam.

From beginning to end, my tour was highly successful, and in retrospect, I wouldn't have missed it. The AMA did an excellent job of making all arrangements, including flight

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Dr. Wright is with the Medical Department of E. I. du Pont de Nemours and Company, Wilmington.

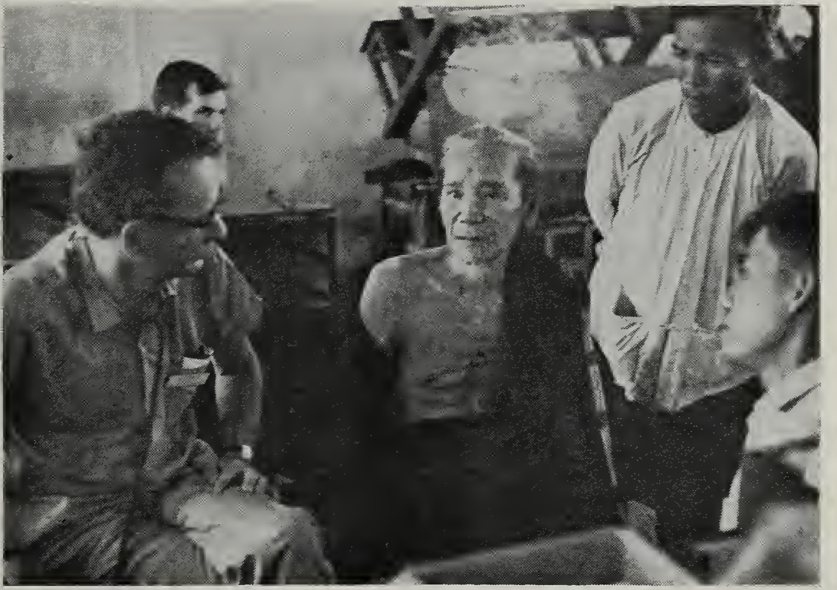

Figure 1
Medcap Mission—Rural Village. From left to right: Dr. Wright, patient and interpreter. (Schoolhouse—benches piled in back for more room.)

plans over and back (one is able to stop over on the return trip in Europe, Asia, Hawaii, etc., without extra cost), and giving general advice.

The first stop, except to refuel, after leaving the west coast was in Hong Kong, where travelers rest and obtain gifts at unusually good prices. Upon arriving in Saigon, our group of eleven physicians was met by the VP/VN Director, a physician assigned to USAID. We spent two days in Saigon for orientation and were then sent by plane to our assigned province hospitals. Before leaving, we talked with physicians who were finishing their tours concerning their respective assignments.

Five of our eleven physicians were assigned to the delta region. We stopped in Can Tho to receive our individual assignments and further briefing. Since we stayed there two nights, we were able to see an average Vietnamese city for the first time. It was here that I first observed the Vietnamese people and their land. The Mekong River, one of the largest in Southeast Asia, ends in a large delta of low land with many rivers and tributaries. The whole lower quarter of Vietnam, from Saigon to the South, is delta, only one to two feet above sea level. All higher solid ground is made by digging out the clay silt to build up other areas to form roads and foundations for homes. Canals are formed along the roads and are used, when the tide is in, for transportation of food and people, bathing, washing, and also as a sewer.

The land area is swamp-like jungle of which the cleared areas were formerly used for growing rice. The Viet Cong prevent rice cultivation so that now Viet Nam must import rice whereas before the war it was exported. Vietnamese weather is either hot and dry or hot and wet. As I was there during the transitional period, there was no rain during the first month but rain began during the second.

I took my first helicopter ride as I left Can Tho for my ultimate destination of My Tho, the largest city in the province of Dinh Tuong about 40 miles southeast of Saigon. The population of the province is 600,000 of whom 70,000 live in My Tho.

The main building of the province hospital in My Tho is composed of two floors: the lower, surgical, and the upper, medical. Men and women are separated by a nurses' station in the middle. There are about 400 beds although there were often two patients to a bed and in one instance, I saw three in a bed in a recovery ward. Many surgical patients maintained quarters on a straw mat on the floor in a long hall and I had to step over or around them to go upstairs to my women's medical ward. I was also in charge of a tuber-

Figure 2
View of rural village showing water buffalo.

culosis ward building near the main hospital, served as a consultant in the contagious and prisoner wards, and substituted in the out-patient department. There were 30 TB beds and hundreds of out-patients. Tuberculosis is rampant in Viet Nam and a great many public health measures are needed to check it.

The most common diseases I saw, other than TB, were intestinal parasites and bacterial infections (salmonella, shigella, etc.), malaria, poliomyelitis, rheumatic fever, typhoid, and pneumonia. Cholera and plague were not common. I saw several renal cases but no kidney stones. The only heart disease was congenital or rheumatic; no coronary artery disease or hypertension was evident.

There were three nurses on duty during the day, two Vietnamese and one American, and one Vietnamese at night. Their function was to start I.V.'s, give medicines, and take temperatures. The patient's family, who slept any place around the hospital (usually in the halls), took care of the patients otherwise, by feeding them, washing them, seeing that transportation to the lab, latrine, and x-ray was available, changing their clothes, etc., etc. At first I wanted the families out of the ward; then quickly, I wanted them back. Usually they didn't bother the doctors and were there only to help.

Generally most of the usual drugs were available, as well as I.V. solutions. Blood transfusions are difficult to obtain as the Vietnamese are superstitious about donating blood. This became a serious problem during acute G.I. bleeding, and hemoglobins of 4 gm were common.

Laboratory facilities were adequate, including urinalysis, CBC, NPN, blood sugar, total protein, and A/G ratio, Widals, stool exams for ova and parasites, and smears for malarial parasites.

X-rays of chest and bones were quite good, but no G.I. or G.B. series was available. I performed two I.V.P.'s myself. No radiologists were available, only an excellent Vietnamese x-ray technician. I recall one afternoon, a few minutes after ordering an x-ray on a 40-year-old patient, seeing her being carried piggy-back by her mother downstairs and over to the x-ray department in an adjacent building. Stretchers were a scarce item.

The hospital charts consisted of a description sheet, temperature chart, and an order sheet with a small section on top for symptoms and probable diagnosis to be written. All these were held together with a straight pin and attached by a clothespin to a bar at the foot of the bed along with any x-rays. All communication between my patients and me

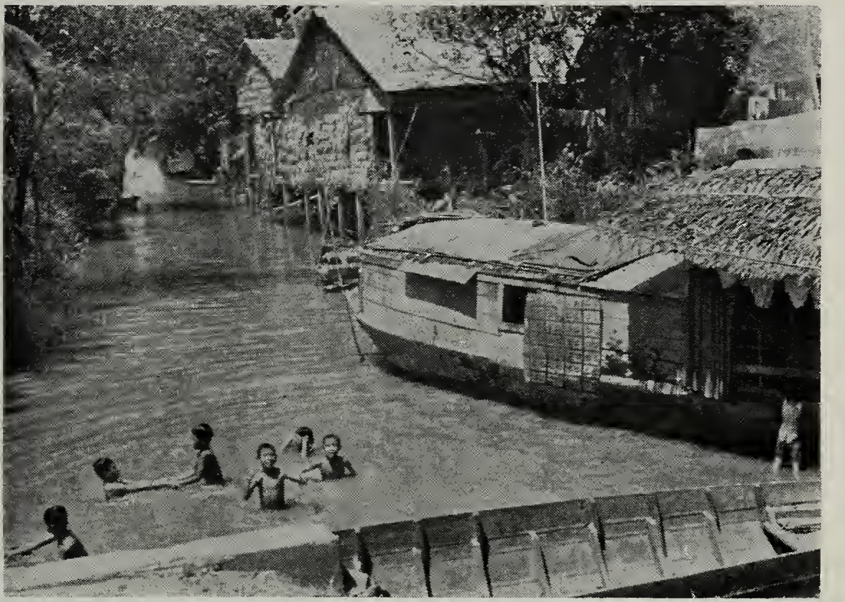

Figure 3
Houseboats and children swimming in canal along main road.

was via interpreter. I was fortunate to have an honest, dedicated, young Vietnamese boy, who has since been drafted into the army for ten years of service as a combat interpreter. He wanted me to listen to every patient's chest with my stethescope, even though a skin problem might be present, as he felt that this act helped them get well. I did as he asked.

There is no question that many of the patients I cared for were Viet Cong or Viet Cong sympathizers. Since both friends and foes appear the same physically, I never knew which was which, but didn't actually care.

Sterile technique was difficult to achieve. Flies were numerous throughout the ward simply because the windows were large ceiling-to-floor arch-like openings with double-louvered doors that were closed only when it rained and had no screens. The flies and mosquitoes had ready access to the open sewers outside and to the patients inside the hospital. Isolation was unheard of and patients with tuberculosis, meningitis, or shigella might all be within a few feet of each other or in the same bed. I did my best to keep probable TB patients at one end of the ward and a case of plague out in the hall.

My most interesting patient was an advanced case of tetanus with trismus and opisthotonos. I prescribed 150,000 units of T.A.T. as well as sedatives, muscle relaxants and tranquilizers. She immediately received 20 injections as T.A.T. was available only in 10,000 unit ampules. She was one of the few patients to thank me when she was released about three weeks later.

Rather than prescribe drugs or drug forms not available, I spent about two days going through the pharmacy noting its supplies. There were sufficient quantities of antibiotics, antimalarial, and antituberculosis drugs. The only drug that was needed very badly but wasn't available anywhere in Viet Nam was neostigmine tablets for a severe case of myasthenia gravis in a Viet Cong prisoner.

Surgery at our hospital was performed by a Filipino team consisting of two surgeons, a lady anesthetist, and scrub nurses. Consultations were readily available. Orthopedics was performed by an American orthopedic surgeon (VP/VN) and a Vietnamese surgeon who also did general surgery. There were three other Vietnamese doctors: the hospital administrator (*médicin chef*); an OB-GYN specialist who worked in a separate building built in the 19th century by the French; and a third who did female surgery. These young Vietnamese doctors were of excellent professional quality and very warm persons.

Very often patients were brought to the

hospital in extremis, proper medical care having been delayed because of "treatment" by Chinese doctors. These practitioners of oriental folk medicine perform by using suction cups and scratching the patient's skin with bits of glass to remove evil spirits and poisonous vapors from the patient. Headaches are treated by pinching between the eyes hard enough to cause ecchymosis. The first suction cup patient I examined had large circular erythematous patches over his anterior chest and presented quite a diagnostic problem until I realized what treatment had taken place before his admittance to the hospital.

Perhaps the most interesting part of the tour was our visits with the Navy River Patrol Boat teams to the rural villages. These missions were known as "medcaps," an abbreviation for medical civilian activities program. Their purpose was to develop rapport with the people of Viet Nam by bringing medical help to them, as well as clothes, gifts, etc. We went by rivers and canals via well-armed patrol boats to four different villages. I was told that I was the first doctor from any country ever to visit these towns. The hamlet chiefs welcomed us each time with the best they had. Together with one or two medical corpsmen, we saw 100 to 200 patients in a three-hour period. We set up our "sick call" in different areas, including a school house, a pavillion, the local aid station and an empty house. Since we had antibiotics, I'm sure we helped a few to get well. One patient I saw in a village, I saw later in the hospital.

Our quarters in My Tho were better than I had expected. Air conditioners were available for our rooms. Vietnamese women took care of our laundry, cooking and cleaning and did an outstanding job. Often they prepared superb cuisine with Chinese, French, and Vietnamese accents. Just outside our rooms were bomb shelters, small separate buildings constructed of one-foot re-inforced concrete with a double roof to help against direct hits. Mortars sent out by our forces occurred every night and incoming mortars about once every week or two. We would then spend one to two hours in the shelter before returning to our beds — a habit one became used to after a few weeks.

I took many color slides all during my stay in Viet Nam. As one might expect in a tropical country, the pictures turned out beautifully. Several times I was alone as I walked around the villages and I thought how pleasant it was under the palm trees and wondered why these people couldn't live in peace.

I am sure the average Vietnamese person, who knows all the facts, understands what sacrifices in lives and material we Americans are contributing to their cause and they did their best in their own way of thanking me.

In summary, I'd like to go back. I believe I received more out of the trip than I gave. The Americans, as well as the volunteers from other countries, are doing a wonderful and much-needed job for a country of confused people who don't know which way to turn. They have so little and need so much.

OUR DELAWARE*

Gerald F. Vaughn

Between 1950 and 1960, only 13 of Delaware's 50 municipalities (excluding Wilmington) lost population. However, the recently completed reapportionment census of 1967 shows that 27 (more than half) now have lost population since 1960, and 22 of these were not among the towns that lost population during 1950-1960. What has caused this sudden decline? In my opinion, the answer lies within the hearts and minds of Delaware's young adults aged 25-34. Of our ten towns with populations of 1,000 or more between 1950 and

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* Editorial Note:

This report has been excerpted from a longer paper entitled, **The Future of Small Towns in Delaware**, originally prepared for the Delaware League of Local Governments. In his paper, Mr. Vaughn, Extension Coordinator of Community and Resource Development at the University of Delaware, analyzes why more than half of Delaware's 50 small towns have lost population since 1960. His complete study is available by writing to him at the University of Delaware.

1960 that decreased in population during the following seven years through 1967, every one had suffered a reduction in its young adults aged 25-34 between 1950 and 1960! Young adults want to know that their community is making progress — that if jobs, housing, social services, etc., aren't fully available today, the community is working to improve conditions.

To the middle- and upper-class Delaware citizen, Delaware's people seem relatively affluent. He sees in the newspaper each year that Delaware ranks in the top two or three states in per capita income, and he assumes that people in Delaware don't have any real problems. He does not know that the Internal Revenue Service reports there are almost as many millionaires in Delaware (a state of half a million people) as in California (a state of 19 million people and home of fabulous motion picture fortunes). These and other Delaware residents who each year earn $100,000 or more raise our per capita income figure drastically out of proportion. In reality two of our three counties — not to forget Wilmington also — have higher rates of poverty than the entire nation.

Many Kent and Sussex County households — in fact, 26% as of 1966 — live typically on the edges of our towns, underfed and underclothed, in miserable housing. This compares to less than 22% for the nation. Three of every four poor families in Kent and Sussex Counties consist of white people and one of four is non-white, but all are disadvantaged.

The average Delaware citizen needs to know that there are people — thousands of people — with serious problems in our state. He needs to know that 22% of the housing in Sussex County is dilapidated or deteriorating, and that one of every six houses in Kent County lacks a flush toilet. There are towns in Delaware with populations of more than 2,500 people where one of every ten adults completed only the fourth grade of school or less, and where one of every eight employed workers is an unskilled laborer. The rate of underemployment (a situation where jobs and wages are not sufficient to fully employ and compensate skilled workers) is as high in Sussex County as in poverty-ridden Appalachia.

Although the ratio of New Castle County's population to that of Kent and Sussex Counties combined is only 2:1, New Castle County has four physicians and surgeons to every one downstate, and four and a half dentists to every one downstate.

Too few of us have cared enough about the despair in which thousands of our own neighbors have lived for so long. I know of no deeper unmet need in Delaware than meaningful aid to these poor people.

The problems of our small towns did not arise overnight, and they won't be solved that fast. But we share the urgency of a mayor I read about recently. He asked his public works director if the planting of trees around city hall could begin in the next week or so. The public works director felt he should remind the mayor it would be 20 years before the trees would be big enough to enjoy. "In that case," the mayor replied, "plant them today!"

DOCTOR SHORTAGE . . . WORLD-WIDE

Those who lament the very real shortage in many parts of the U. S. of physicians may be somewhat cheered by considering these appalling statistics. Compared to our one doctor per 786 US citizens, there is one per 11,000 Burmese; one for 21,000 Senegalese; and in many other areas of the world only one per 40,000 or more citizens.

Editorials

MULTUM IN PARVO
OR
LE MOT PROPRE (S.V.P.)

Except for a few desperately compulsive souls, what doctor of medicine wants any increase in the burden of medical records? However, we are privileged to see the written histories, physical examinations, medical orders, discharge summaries and final diagnoses of many doctors in the course of a year. Little additional writing would be required to convert some records which are really unacceptable to those which are legible, specific and appropriately informative.

A very few standard abbreviations are acceptable (eg, p.r.n., t.i.d., etc.). The increasing use of highly personal or regional variations in abbreviations and acronyms must go. How does ASCVHD as a final diagnosis hit you? It drives us up the wall.

The listed final diagnoses frequently do not include major or significant disabilities (eg, diabetes mellitus), but note only an inguinal hernia, which was repaired, or a "fractured hip." Bless us all, the hip is a joint; it is the femur which is fractured.

What is meant by the phrase, "the addomen (or any other part of the anatomy) is negative?" We all tend to use certain phrases repetitively; this is all right when they are pertinent and correct. But, how many times have you seen "the neck was supple and the trachea in the mid-line" when there was no subsequent evidence to indicate that the neck was ever really examined since no mention was noted of an easily palpable nodule in the thyroid gland. No one bats 1000, but let's not get carried away by our own sing-song.

Recently we have seen an order for "Seconal, h.s., p.r.n." Obviously the omission of the dosage of the proprietary drug should render the order invalid. Additionally, this order was carded to be given each night, p.r.n., when the "h.s." should only be construed as valid for the *hora somni* of the date of the order. The intent was q.h.s., p.r.n., but it didn't get written that way. Another order was simply "UA." As it turned out, this was intended, not at all illogically, to mean urine analysis. It meant nothing to the nurse who was supposed to be able to interpret it and nothing to several ambient, volunteer physician interpreters. Again, this is an unacceptable abbreviation.

S.W.R.

WHO'S S.O.B.?

Dr. Stuart Rose's editorial protest regarding the impropriety of private systems of abbreviations on hospital medical records is valid. And we share his plea that negative when used to describe physical findings must never, no, never, be used as a subterfuge for "not examined."

Because of early personal experience with misinterpreting medical abbreviations, we are well aware of the possibilities for confusion when they are used. As a freshman medical student we noted that all the notices of visiting lecturers were prefaced or ended with the letters HUP, and so we thought that HUP was a local cheer, sort of a private convention for "Let's all go listen!" Hospital of the University of Pennsylvania, it turned out to be, but we were already in our sophomore year before we knew.

And when we were sent to PGH for p.m. experience (to Philadelphia General Hospital for post-mortem experience, that is; the class was actually very early a.m.), the prosector reading the clinical history said that the deceased had been SOB on arrival and then asked if anyone knew what SOB meant. I told him. I was wrong. That SOB also meant short of breath I had never previously known but, needless to say, have never forgotten.

Recently during just one medical conference, we noted that FA can mean folic acid or fluorescent antibody. MI now usually means myocardial infarction more frequently than mitral insufficiency but of course can be either. RRE is a pupillary not a mammary description on a hospital chart; so is the rarer PERLA. UA is uric acid or urinalysis and this is completely confusing when written as an order. Ca is cancer or calcium; I personally opt that the disease be written as CA to avoid this confusion.

BS is blood sugar or breath sounds in polite medical society. CC is chief complaint but not cc. G.I. next to blood or series means gastrointestinal; next to Joe, it does not.

ASCVD as a diagnosis does not "drive us up the wall" as it does Dr. Rose. Providing that it means what it says, it is a useful way of using five letters instead of 37 (arteriosclerotic cardiovascular disease; count for yourself if you disbelieve). In preference to writing all that out, we would rather see the doctor's energy used in listing its manifestations: congestive heart failure (CHF), or memory failure, or peripheral vascular disease (PVD), or coronary heart disease (CAD in some places, although we locally do not use it much).

"Fractured hip" may actually be an incorrect short-cut for fracture of femur, intracapsular, but it is clear and can never be confused with any other medical problem providing it is not further abbreviated F.H. (family history).

When we first began our internship it came as a shock to learn that although q.i.d. was four times daily and b.i.d., twice, every other day could not safely be written q.o.d. but q.d. means daily. And in reading physical examinations recently, we have noticed that N has been used to mean normal, negative, and none. To our knowledge it is a legitimate abbreviation only for nitrogen.

If all of us were to make a distinction between abbreviations for private use (our own office charts, lecture notes, shopping lists) and those to be more publicly understood (hospital orders, hospital charts in general) much confusion could be avoided. It is a convention in this as well as other scientific journals that when for efficiency it is decided to use an abbreviation instead of multiple rewriting of a lengthy expression, translation early in the text and at regular intervals throughout is provided. This is a good practice which doctors could more generally make use of.

Some abbreviations have been used enough that they have actually replaced the full expression which are now never spelled out. Examples of this are Mr., Mrs. (the full *mistress* is certainly not usually equivalent), OK, and perhaps even SGOT, SGPT, and LDH—for we would bet that more MD's can tell what these tests are used for than what the letters stand for.

There is so much ground for confusion. An LMD is not nearly the same as an LMP although they look much the same when handwritten. A WD patient need not have VD. R.A. is usually rheumatoid arthritis; Ra is radium; and lately RAI is radioactive iodine. RAO is a view; ROA is more complex and means that the fetus, face flexed on his chest, has the back of his head to the front of his mother with his spine on her right — the abbreviation does, indeed, save many words. KUB is kidney, ureters, and bladder in many places and urologists are also prone to the use of IVP, TUR, and GC. An IUD is really very different than an ICU. In a restaurant last week we learned still another which is similar: ICW, "it comes with." FUO, UFO, BLT, TLC, GOK — our daily jargon is replete with abbrevs.

The tradition of abbreviating medical expressions for economy of time is an ancient and useful one. The guiding principles in their use must be explanation of private conventions or their avoidance, and constant attention that context allows unequivocal interpretation.

*BZP**

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*This office regrets that it is unable to provide interpretation of this peculiar abbreviation.

WE LUCKY SURVIVORS: HISTORY AND US

Elsewhere in this issue is the second of a series of articles by Dr. Lewis B. Flinn, who for many years has been interested in medical history especially as it relates to the weather.

It seems apropos to his presentation to reprint his thoughtful paragraph by Alan Gregg[1] in which he relates our new experiences as physicians to the experiences of all of our forerunners, Hippocrates through Harvey, Maimonides through Osler.

"It is not the areas of merely intellectual agreement that bind us to our colleagues of the past but the frustrations and predicaments both we and they have lived through, of ignorance and powerlessness, or sometimes a happier circumstance — the kinship of lucky survivors. We have thus something in common with the doctors of every age and every country, with the mediocre, obscure, and forgotten as well as the great and distinguished and famous. It is what our patients have made of us quite as much as what we have made of them that forges for doctors a common bond. We all have played the same role to the rest of mankind. We had to meet their expectations and had each our bit of that community of experience that all doctors share — and *only* doctors. For in the last analysis human societies make their healers, and the healers then make the doctrine. And eventually, if the makers of doctrine happen to espouse the scientific method, a feed-back phenomenon begins: the doctrine because it is true begins to make true healers of the healers, and the healers, using the truth, begin to remake the society that made them. But until science has provided us with the complete explanation and control of every phenomenon that confronts us as doctors, we shall have to accept, with a degree of modesty to match our ignorance, the traditional professional role that society has given us — its pleasures, its frustrations, its humor and its anguish, its rewards and its burdens."

B.Z.P.

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[1] Alan, Gregg: *For Future Doctors,* University of Chicago Press, Chicago and London, 1957.

Letters to the Editor

To the Editor:

The editorial by H. H. S. regarding pitfalls in diagnosis and dangers in treatment of PKU in the April issue should be required reading for all physicians whose practice relates to this age group. Dr. Stroud pointed out in excellent fashion, that screening test results are not diagnostic of PKU and diet treatment of known cases is anything but simple.

The successful dietary treatments that I am aware of, have most often been carried out in research or university hospital environments. We must continue to point out "pitfalls," and discount statements of "simple diagnosis and easy treatment" in preventing mental retardation.

A salute to Dr. Stroud for voicing the cold, hard facts of actual practice — PKU is an extremely complicated inborn error of metabolism in both diagnosis and management. We have eight cases here at HMR of severely retarded PKU residents — cold, hard facts.

John V. White, M.D.
Superintendent, Hospital for
The Mentally Retarded

President's Page

DELAWARE'S ABORTION REFORMS

The reformed abortion law for our state is long overdue. England, Sweden, and Japan have long had liberal laws which practically allow therapeutic abortion by the request of the individual patient. In spite of this liberalization, the expected abuse of this legislation has not developed. The bill as presented to our Legislature compares favorably with that of other states which have already legislated reform laws. In the state of Delaware a survey was done which was answered by 75% of our physicians. Of the responding physicians 82% favored the new reforms as advocated by certain members of our Legislature.

For those who question the wisdom of these reforms I suggest a visit to Delaware's Hospital for the Mentally Retarded at Stockley. Surely if we could prevent the propagation of the physicially and mentally maimed children and adults, our cause would be more than worthy.

For over a century the performance of an abortion in our country has been a criminal offense subject to severe punishment. The only exception to this has been when a committee of physicians could certify that the abortion is essential to save the pregnant mother's life. In recent years an estimated one million abortions have been performed annually, of which 8,000 have been therapeutic cases handled by physicians in hospitals. The other abortions have been done by unqualified individuals, many associated with so-called abortion rings, or by the pregnant woman herself. All physicians are aware of the high incidence of infections, permanent damage, and death that result from such acts performed under septic conditions.

The first reform bill was introduced in California several years ago when therapeutic abortions were allowed for mothers exposed to rubella during the early weeks of pregnancy. Many other states have followed California's lead by instituting reforms which not only contain provisions for an abortion when necessary to save a woman's life, but also when continued pregnancy would gravely impair a mother's physical or mental health or when pregnancy resulted from rape or incest or where an infant would most probably be born with an incapacitating physical or mental deficiency.

It is my sincere hope that Delaware's Legislature will liberalize the present law. Colorado, North Carolina, Georgia, and Maryland have already passed such legislation. Medical progress in Delaware will attain a new high when these reforms are enacted.

Charles M. Moyer

Delaware Academy of General Practice

RECENT HAPPENINGS

At a meeting April 18-19 in Kansas City, the AAGP Board of Directors approved support of a resolution on universal drug coding circulated by two Mayo Clinic physicians, and approved the following statement:

BE IT RESOLVED that the American Academy of General Practice recognizes the hazards to the welfare of the patient and the many needless practical difficulties resulting from present problems in drug identification. We recommend that a universal system of drug identification be established to resolve these problems through joint efforts of the medical professions, the pharmacy professions and the pharmaceutical industry.

The Board also adopted a motion directing the Commission on Membership and Credentials to continue its study of a mechanism for admission of osteopaths to AAGP membership.

A motion was adopted prohibiting use of the Muehlebach Hotel for future State Officers' Conferences; and authorized Executive Director Mac F. Cahal to seek other appropriate facilities for the 1970 meeting.

Approval was given to a recommendation of the Legislation Commission that Title 18 and 19 health care benefits not be expanded at the present time but agreeing that Medicare patients should be able to enter extended care facilities without first spending three days in a hospital.

The next meeting of the Board of Directors will be held in New York City, July 17-19, following the annual convention of the American Medical Association.

* * *

Approximately 2,500 cases of cervical cancer have been found by 5,013 physicians participating in the Academy-sponsored detection project according to statistics presented at a meeting of the Committee on Cancer, May 3-4, in Chicago.

The March 31, 1969 tally showed a total of 2,467 cases reported among 1,119,864 patients screened since the project began in 1965. The Minnesota chapter records the most patients examined, 194,397. Illinois follows with 105,397; Virginia is third with 92,577.

* * *

Approximately half of the Academy's active and associate members are located in communities of 25,000 or less population, according to a recent computer survey of membership by the headquarters data processing department. Of that number (56.1 per cent), 13.8 per cent are located in communities of less that 5,000 population.

The survey also shows, in a distribution of members by age, that half are less than 50 years old. In a breakdown combining age and community size, the figures show that 46.7 per cent of the members falling within the age bracket 35-50 are located in communities of less than 5,000 population.

SERVICE WITH AN UNSEEN SMILE

The Social Security Administration will now accept letters written in Braille and also reply in Braille when asked to do so. This mode of correspondence which will be handled by a blind typist should be a boon to the more than 30,000 blind, disabled and the other blind on the regular Social Security rolls.

In Brief

In the News

Charles M. Moyer, M.D., President of the Medical Society of Delaware, has been named Associate Fellow in the American College of Cardiology . . . Maynard H. Mires, M.D., Dover, was elected president of the new First State Shrine Club . . . Richard J. Kester, M.D., was the speaker at the quarterly Kent County Medical Society meeting held May 18, 1969 in Dover; topic — *Treatment of Drug Addiction with Methadone.*

New Journal on Stroke

The Delaware Heart Association will distribute a new scientific periodical entitled *Stroke — A Journal of the Cerebral Circulation*, published by the American Heart Association. January, 1970 has been scheduled as date of the first bi-monthly issue. Cooperating with the A.H.A. in publishing this journal are the American Academy of Neurology and the American Neurological Association. For further information contact your Delaware Heart Association, Suite 60, Independence Mall, Wilmington, Delaware, or call 654-5269.

Orthopaedic Postgraduate Course

The American Academy of Orthopaedic Surgeons will sponsor a postgraduate course on hip problems in children October 19-21, at the duPont Institute, Wilmington, Delaware. Directing the three-day course of lectures and panel discussions will be G. Dean MacEwen, M.D., Surgeon-in-Chief. For application forms and further information, contact Dr. MacEwen, at Box 269, Rockland Road, Wilmington, Delaware 19899.

New Generation of Doctors

Two Delawareans who were graduated from the Jefferson Medical College and Medical Center in Philadelphia this month are: Christopher R. Donoho, Jr., M.D., son of Dr. and Mrs. Christopher R. Donoho, Sr., Newark, and Peter Andrew Gehret, M.D., son of Dr. and Mrs. Andrew M. Gehret, Wilmington.

Speakers on "Ask the Doctor"

Speakers for July, 1969, on the Tuesday Radio Program (11:05 a.m., WDEL), produced by the Medical Society of Delaware are: July 1, William F. Rath, M.D., *Cataracts;* July 8, Lloyd B. Harrison, Jr., M.D., *Tonsils and Adenoids;* July 15, Morton Keyser, M.D., *Menopause;* July 22, Edgar Johnson, M.D., *Surgery for Deafness;* July 29, Leonard Rosenbaum, M.D., *School of X-Ray Technology.*

Diabetes Screening Programs

The Disease Detection Information Bureau (DDib) marking its first anniversary, is now aiding diabetes detection programs in 14 states throughout the nation (including Delaware). DDib provides aid to any community in the country interested in conducting a diabetes detection program which follows an established protocol, including use of blood rather than urine testing procedures, medically approved and supervised testing, referral of positive screenees to their own physicians and maintenance of adequate records and statistics.

NTRDA Announcement

By action of the Executive Committee of the National Tuberculosis and Respiratory Disease Association, the association supports the proposed ban on all cigarette advertising on television and radio, and recommends that the warning label on cigarette packages be strengthened to indicate cigarette smoking is habit-forming and causes disease and death. Furthermore, the NTRDA recommends that a comparable warning be required on cigarette cartons and in all advertising of cigarettes in newspapers, magazines and other media.

Arrhythmias Testing Unit Available

A four-panel table-top unit for physicians to test their ability in the diagnosis and treatment of arrhythmias, has been prepared by the American Heart Association's Committee on Medical Education. Each of the panels illustrates a medical case with x-rays and electrocardiograms correlated to the written case history. After studying these and pertinent laboratory data illustrated on the panels, the physician answers multiple choice questions relative to each case. It may be obtained on a loan or purchase basis through the Delaware Heart Association.

Cardiology Audio Tape Journal

The American College of Cardiology, started in mid-May, to release a brand new monthly audio-medical journal consisting of a 60-minute tape cartridge of timely, clinically oriented information exclusively on cardiovascular disease. Subscription is open to all interested physicians and surgeons. The program is called ACCESS, the American College of Cardiology Extended Study Services. Further information, including a detailed announcement listing the type of equipment available can be obtained by writing ACCESS, American College of Cardiology, 9650 Rockville Pike, Bethesda, Md. 20014.

The Month In Washington

Medicare-Medicaid Payments

The AMA has offered to cooperate in a Senate investigation of large medicare and medicaid payments to physicians and other health practitioners, following a Senate speech by Sen. John J. Williams (R., Del.), in which he reported that the staff of the Senate Finance Committee had found that several thousand doctors, dentists and others had received $25,000 or more for their services under two government programs in 1968. The AMA issued a statement saying, "All investigations so far have indicated that an overwhelming majority of physicians participating in medicare and medicaid are charging reasonable fees. The charges of only about two per cent of the physicians receiving payments from the programs have been challenged. Last June, the AMA Board of Trustees urged all state and local medical societies 'to act swiftly and firmly in all instances of known exploitation and excessive charges for health care that may occur in their jurisdiction.' "

Pollution Problems

President Nixon has created the cabinet-level Environmental Quality Council to begin a major attack on pollution of the environment. He also named a companion 15-member Citizens' Advisory Committee to be chaired by Laurence S. Rockefeller, on the recommendations of Leo A. Dubridge, PhD, his chief science adviser.

CLINICAL NOTICES AND MEETINGS

ACP Gerontology Course

The American College of Physicians will sponsor a three-day postgraduate course on *Clinical Gerontology*, August 21-23, at the Shoreham Hotel, Washington, D.C. The ACP course will immediately precede the 8th International Congress of Gerontology, August 24-29, in Washington, D.C. For applications write: Edward C. Rosenow, Jr., M.D., Executive Director, ACP, 4200 Pine Street, Philadelphia, Pa., 19104.

College of Surgeons Pan-Pacific Congress

Following the meeting of the American College of Surgeons in San Francisco, October 6-10, 1969, the Eleventh Congress of the Pan-Pacific Surgical Association will meet in Honolulu, Hawaii, October 14-22. Concurrent meetings will be held in colon and anorectal surgery, general surgery, neurosurgery, obstetrics and gynecology, ophthalmology, orthopedic surgery, otolaryngology, plastic surgery, thoracic-cardiovascular surgery, and urology. Included in the program will be meetings in anesthesiology and radiology.

All scientific meetings will be held in the morning, leaving afternoons free for sightseeing and social events. Make this a family holiday. For information write: Andrew C. Ivy, Jr., M.D., Chairman, Public Relations Committee, Pan-Pacific Surgical Association, Alexander Young Building, Honolulu, Hawaii 96813.

Nursing PG Course Emergency Room Nurses

The third annual postgraduate course for Emergency Room Nurses will be held Sept. 25-27, in the Palmer House Hotel, Chicago. Advance registration is required; tuition fee of $60 covers three full days of scientific sessions and the chairman's reception and banquet. Inquiries may be addressed to George T. Anast, M.D., 55 East Washington Street, Chicago, Illinois 60602.

Congenital Malformations

The 3rd International Conference on Congenital Malformations, sponsored by the National Foundation — March of Dimes, will be held at the New Netherlands Congress Centre, The Hague, The Netherlands, Sept. 8-12, 1969. For information write: Secretariat of the 3rd International Conference on Congenital Malformations, c/o Holland Organizing Centre, 16 Lange Voorhout, The Hague, The Netherlands.

Leukemia Research

The World Committee for Comparative Leukemia Research announces the IVth International Symposium on Comparative Leukemia Research to be held Sept. 21-25, 1969, Cherry Hill Inn, Cherry Hill, New Jersey. Due to limitations in space, attendance at the meeting will be by invitation. It is essential to indicate interest as soon as possible. For further information contact: Edward P. Larkin, M.D., School of Veterinary Medicine, University of Pennsylvania, Kennett Square, R.D. #1, Pa., 19348. Telephone: (215) 444-5800.

Cardiovascular Symposium

The Tenth Annual Cardiovascular Symposium of the Tidewater Heart Association will be held at the Williamsburg Lodge and Conference Center, Williamsburg, Virginia in three half-day sessions, Sept. 5-7, 1969. For symposium reservations write to: Tenth Annual CV Symposium, Tidewater Heart Association, 523 Boush Street, Norfolk, Virginia 23510. Room reservations should be made no later than Aug. 15th with Mrs. Mary Thompson, Reservations Manager, Williamsburg Restoration, Inc., Williamsburg, Virginia 23185.

Neurology and Surgery

The first joint meeting of the Ninth International Congress of Neurology and the Fourth International Congress of Neurological Surgery to be held in New York City, September 20-27, 1969, will be called the World Congresses of Neurological Sciences. All scientific meetings as well as scientific and technical exhibits will be at the New York Hilton. Physicians and surgeons who specialize in neurological diseases are expected to attend from 40 countries. For further details, write: World Congresses of Neurological Sciences, 420 Lexington Avenue, Suite 417, New York, N. Y. 10017.

The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

DRUG ABSTRACTS

Methicillin-Resistant Staphylococcus Found in Boston

The spread of infections caused by penicillin G. resistant Staphylococcus aureus was the cause of much concern among health practitioners until the development of methicillin and its derivatives. Recently, however, strains of staph have been reported which are resistant to methicillin and other antibiotics. Barnett, McGehee and Finland (N. Eng. J. Med. 279,441,1968) describe 22 isolates of methicillin-resistant staph found in 18 patients. Fifteen of the 18 patients acquired their infection while in the hospital.

After an extensive description of the characteristics of these bacteria, the authors conclude that "it seems reasonable to predict that methicillin-resistant staphylococci will become more widespread in the United States and may present some clinical and epidemiologic problems in the future."

Corticosteroids — Blindness

The glaucoma-provocative effect of steroid preparations instilled into the eye has been demonstrated by various investigators. In the present case a 39-year-old physician sought ophthalmic consultation because of gradual decrease in vision. Corrected vision in the right eye was 20/50. Vision in the left eye was limited to the discernment of hand movements. Intraocular tension was 50mm Hg bilaterally (Schiotz tonometer). Upon questioning the patient stated that he had used dexamethasone ophthalmic ointment two to three times daily for the past three years to control "allergic" conjunctivitis. Treatment with Pilocarpine, Eserine, and Diamox normalized the intraocular pressure. Vision in the right eye improved but remained unchanged in the left. This case exemplifies the dangers of self-medication and underlines the caution with which steroids must be prescribed for ophthalmic use.

Frenkel, M. (Illinois Eye and Ear Inf., Chicago, Ill.), Ill. M.J. 135:160 (Feb.), 1969.

Catnip

Thrill-seekers have discovered another psychedelic ticket in the form of catnip (Nepta cataria). Catnip is available in pet stores in its natural leaf form and as a liquid extract in an aerosol canister. The plant leaves are smoked in cigarettes or in a pipe, or the extract is sprayed on tobacco, which is then smoked in any conventional manner. According to several users the effects of catnip are similar to those of marijuana. However, of five patients observed by the authors, the recurrence of the state of altered consciousness in one and headache in another suggests that the effects of catnip may be more like those of LSD than marijuana and thus may be potentially more serious.

Jackson, B. & Reed, A. (VA Center, Wood, Wisc. (Dr. Jackson)), JAMA 207:1349 (Feb. 17), 1969.

Coly-Mycin — Misuse

A previously healthy 4-year-old child developed acute renal failure and paralysis after receiving 450 mg. (22.5 mg./Kg.) Coly-Mycin Injectable (sodium colistimethate for injection) over a period of 18 hours. (The manufacturer's dosage recommendation is 2.5 mg/kg/day.) The patient's clinical deterioration was not recognized as being due to the massive doses of the antibiotic. Treatment was continued until a total of 1,150 mg Coly-Mycin (plus 3.5 gm Ampicillin) had been given during a 42-hour period. Corrective measures were applied when the nature of the situation became apparent, but the patient died. The major finding at autopsy was acute tubular necrosis. Coly-Mycin is a useful, but potentially toxic, antibiotic. The author concludes: "A careful watch for signs of acute renal failure as well as attention to details of dosage would seem to be indicated for all patients receiving colistimethate therapy regardless of their apparent renal function status."

(Ryan, K. J. et al. (Univ. Wash. School Med., Seattle, Was. (Dr. G. E. Striker)), JAMA 207:2099 (Mar. 17), 1969.

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SURGICAL TREATMENT OF THYROID DISEASE

• The indications for the surgical treatment of hyperthyroidism have lessened with the advent of radioactive iodine. However, solitary nodules of the thyroid may still require surgical exploration to provide proper expeditious diagnosis and treatment. This is especially true if the solitary nodule occurs in a child, adolescent or male.

William P. Graham, III, M.D.

The three indications for thyroid surgery are 1) the solitary thyroid nodule; 2) toxic or non-toxic goiter; and 3) suspicion of carcinoma.

Thyroid Nodules

Thyroid nodules are relatively common although they may be more prevalent in certain areas of the country where goiter tends to be endemic. Vander[1] and his associates found a 2% instance of palpable nodules in 5,000 patients carefully examined. In an earlier study, Schlesinger and his co-workers[2] found that 8% of thyroid glands examined at post-mortem had nodules measuring more than 1 cm in diameter.

The need for accurate evaluation of thyroid nodules is apparent if a number of patients are to be safely spared unnecessary exploration and thyroidectomy. Sokal[3,4] demonstrated only one of 140 patients who had thyroid nodules that were not operated upon initially was later found to have thyroid carcinoma. In contrast, 16% of 83 patients in the same study who were operated upon after initial evaluation of a thyroid nodule had thyroid carcinoma.

In an attempt to ascertain whether or not benign goiters could be clinically differentiated from carcinoma, an evaluation of 214 patients seen at the Roswell Park Memorial Institute was initiated.[5] These were already-selected patients in that they had been referred by physicians to a cancer hospital for treatment. Of the 202 patients thought to have benign goiters, 95 patients had thyroidectomy and 2% had cancer. In 18 cases who were suspected of having thyroid carcinoma, 28% did have carcinoma. Eight patients of the 15 thought to have "probable thyroid carcinoma" were proven to have carcinoma at surgery. Of the total 88 patients who underwent surgery within one year, 19% were found to have cancer.

Clinical evaluation is based on history, duration of the goiter, pattern of growth, physical examination, size, consistency, and number of nodules. Extra thyroidal findings of importance include symptoms of invasion, metastatic nodules, and fixation to the skin.

Thyroid function studies have not proven

Dr. Graham is Associate in Plastic Surgery, Director, Tumor Clinic, Graduate Hospital of the University of Pennsylvania and Advanced Clinical Cancer Trainee, American Cancer Society.

helpful in distinguishing benign from malignant nodules. In women 30 to 50 years of age, radioactive uptake studies may be helpful in planning the course of action; however, uptake by the nodule is not an invariable sign of benignancy.[6]

Editorial comments appear on page 225

Critical appraisal of thyroid nodules requires a high index of suspicion. Persons under 30 years of age are more likely to have cancer, particularly if there has been a history of previous irradiation to the neck. Although rapid enlargement of the nodule in a person between the ages of 30 and 50 may represent hemorrhaging into a pre-existing nodule, it should be viewed with great suspicion. At any age, a thyroid nodule in a man is more likely to be carcinomatous than a similar lump in a woman. If a nodule occurs in a woman between the ages of 30 and 50 who has none of the above suspicious features, a short trial of suppressive therapy may be useful. As with the medical treatment of gastric ulcer, this should be undertaken with a clear plan in mind, and a definite diminution in the size of the nodule should be present in from four to eight weeks or surgical intervention should follow.

Hyperthyroidism

In patients over 40 years of age who cannot be controlled by antithyroid drugs, radioactive iodine is the preferred mode of therapy. Exceptions are those patients who have been shown to have a small thyroid gland with rapid clearing of ^{131}I from the gland, thus necessitating large doses of ^{131}I to insure adequate cessation of function; patients in whom a question of malignancy exists; pregnant women; and individuals with a single "hot" nodule.

The use of antithyroid substances, even in highly selected series in adults, results in 25% recurrence rate within one year, thus generally precluding definite treatment by this means. Almost all patients will have recurrence of their hyperthyroidism with cessation of the drug although a few children may be cured.[7]

Hyperthyroidism (Graves' disease) in children should be treated by surgery as the antithyroid drugs are usually unsuccessful, and the risk from the long-term effects of radioactive iodine is as yet unknown. The postoperative incidence of myxedema is often higher in the child than in the adult. The Mayo Clinic experience showed 71 of 186 children to have become hypothyroid following thyroidectomy.[8] Only four of the children in their series developed recurrent hyperthyroidism. The Cleveland Clinic's experience[7] indicates that the antithyroid drugs are preferable to surgery in children to avoid the hypothyroidism which may occur following surgery.

Massive Non-toxic Goiter

At times thyroid enlargement may become sufficiently large to result in a cosmetic disturbance that requires surgery. Here the incidence of carcinoma is much lower than with the solitary nodule, but carcinoma still may occur. Occasionally a large intrathoracic component may be present and should be diagnosed pre-operatively by chest x-ray.

The removal of a large adenomatous goiter for cosmetic reasons poses no specific problems other than careful protection of the recurrent laryngeal nerves and preservation of the parathyroid glands. The retrosternal portion can generally be readily delivered into the neck from above. At times, a very low-lying goiter within the mediastinum cannot be distinguished from other mediastinal tumors, and a transsternal approach is indicated.[9]

Carcinoma of Thyroid

Malignant disease of the thyroid is rather rare. In the *Cancer Prognosis Manual* of the A.C.S. edited by Arthur G. James,[10] the five year survival for patients with papillary adenocarcinoma is 76%. The survivals for the similar period in patients with follicular and alveolar carcinoma are 64.7% and 62.8% respectively. Patients with undifferentiated carcinoma had 11.3% survivors at five years and 9.3% survivors at ten years.

Cancer is more common in women, but the index of suspicion should be extremely high when a solitary nodule is encountered in men. Carcinoma of the thyroid may occur with thyroiditis, but this is an unusual association. It is of interest that there is a loss of microsomal antigens in thyroid cancer cells so that they can survive in tissue culture in sera from patients with Hashimoto's struma while normal thyroid cells do not.[11] Reportedly, 5 to 10% of multinodular glands will have carcinoma, but a degree of selection is indicated in these figures as these are the patients who obviously have been operated upon and thereby had sufficient findings to warrant surgical intervention.

A High Incidence of Carcinoma

A high incidence of thyroid carcinoma has been found in those patients who have had x-ray therapy in youth for thymic enlargement, cervical adenitis, acne and other benign conditions in the cervical area.[12,13] It appears that there is a definite age relationship: the younger the patient is when he received his radiation, the earlier carcinoma will develop. With advancing age, the thyroid becomes resistant to malignant change following radiation. In 222 patients over the age of 20, all but two of whom received more than 1000 rads and who were followed for a 10 to 35 year period, no thyroid carcinoma developed.[14]

The histology of the thyroid malignancy varies. A few will be malignant adenomas, ie, angioinvasive encapsulated follicular carcinoma in an adenoma of the thyroid gland. About 60% will be papillary follicular carcinoma, 20% will be pure papillary, and 10% will be medullary (a variant of follicular carcinoma). The remainder includes a variety of forms such as Hurthle cell, giant cell, pure follicular and squamous cell carcinoma.[15]

Anaplastic carcinoma occurs almost exclusively in women. It has a rapid course with death occurring in a short period of time, usually due to a respiratory obstruction, before dissemination occurs. This may represent a virulent end-stage of a papillary or follicular carcinoma, since most of these patients have had a goiter for many years.[16] The possible evolution of thyroid carcinoma from pre-existing benign conditions has not been clearly delineated and is an area for great debate.[17]

The use of incisional biopsy is warranted for differentiation between thyroiditis and infiltrating carcinoma. The incision should be planned so that it can be extended if a need for further surgery is present. Needle biopsy may be of help in establishing the diagnosis of thyroiditis but cannot be depended upon to rule out the presence of carcinoma.

When the distinction between lymphoma or metastatic carcinoma cannot be made on clinical grounds and there is need for removal of a cervical node, the incision for the node removal should be placed so that it can be extended to permit either a radical neck dissection or a thyroidectomy.

The removal of solitary thyroid nodules by shelling them from within the thyroid substance should be condemned. If the lesion proves to be follicular carcinoma and has been excised with adequate margins by the removal of the involved lobe and isthmus, further surgery need not be performed. However, if there is evidence of multicentricity or lymphatic invasion within the gland or papillary carcinoma is diagnosed, then subsequent total thyroidectomy is warranted.

The dangers of total thyroidectomy are well known: recurrent laryngeal nerve damage and postoperative hypoparathyroidism. To avoid the latter, a portion of the posterior capsule of the gland on the uninvolved side is usually spared to preserve the parathyroid blood supply and glands. The justification for total thyroidectomy in the presence of papillary or papillary follicular carcinoma is based upon the demonstration of multicentricity and intraglandular lymphatic spread. Russell and his associates[15] at the M. D. Anderson Hospital have shown an 87.5% occurrence of tumor within the contralateral lobe of the thyroid and have been vigorous advocates of total thyroidectomy for thyroid carcinoma. Tollefson and DeCosse[19] have felt that total thyroidectomy was unwarranted in that they were able to demonstrate only 3.7% recurrence rate after lobectomy. However, in examination of the specimens in which the total thyroid has been removed in their series, there was a 30% instance of carcinoma in the contralateral lobe of the gland.

It is imperative that a radical neck operation be planned in patients with involved nodes. It is most easily carried out at the time of thyroidectomy if the patient has been prepared for this possibility. Usually a full neck dissection is not necessary; the sternocleidomastoid muscle can be spared as well as the accessory nerve. Submandibular dissection can be limited, for it is extremely unusual for metastases to occur in that region. Involvement of the pericapsular nodes on either side is an indication for concomitant neck dissection.

Radiation Therapy

External radiation therapy may be used to assist in the control of the disease, but it is seldom curative. Papillary carcinoma is slightly more radiosensitive than follicular carcinoma. At times anaplastic carcinoma may be extremely radiosensitive, but often the extensiveness of the lesion and the rapid metastases cannot be controlled by irradiation.

The avidity of thyroid carcinoma for iodine varies tremendously, and uptake by the tumor can be determined only for the individual patient.[16] Thyroid carcinoma rarely shows a significant capacity to accumulate ^{131}I in the presence of normal thyroid, so initial treatment must be directed at removal of all possible normal thyroid tissue. The increase in endogenous TSH may then cause the carcinoma to localize ^{131}I. Addition of exogenous TSH rarely enhances the effect of that endogenously produced. Use of antithyroid drugs to enhance carcinoma uptake of ^{131}I has also been disappointing.

Dunhill in 1937[20] described the first cases of regression of thyroid carcinoma after treatment with thyroid substance. Since certain papillary and follicular carcinomas have been shown to be stimulated by TSH, thyroid supplementation is often given to maintain or establish hormonal dependency of the tumor.[21] Massive doses may be required. Triiodothyronine is often preferred to other thyroid substances because follow-up thyroid scans can be done shortly after discontinuation of the drug without waiting a long time for metabolism of circulating thyroid substance.

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ERRATUM: DR. LEE REESE, III, LOST AUTHOR

In the long history of this Journal, which is one of the oldest state journals in the country, many mistakes of omission and commission have been perpetrated but none more grievous than the one of which we have just been guilty. How or where the error took place we do not know, but Dr. Charles L. Reese, III's name was left off the article **Epidural Abscess** in our June issue, which Dr. Reese wrote, along with Dr. Mark Hurm. We apologize most sincerely to Dr. Reese whose hard work on the most excellent case report and literature review we sincerely appreciate.

ENDOMETRIOID SARCOMA:

Successful Removal of a Tumor Invading the Inferior Vena Cava

• Endometrioid sarcoma, presenting as a parauterine mass, freely infiltrated the ovarian veins and extended into the inferior vena cava to the level of T-12. It was successfully removed and the patient is free of tumor after 18 months.

Stanley M. Becker, M.D.
Philip Rosenfeld, M.D.
Ralph Lev, M.D.
Bernard Pancer, M.D.
Howard Slobodien, M.D.

Endometrioid sarcomas are tumors which arise from stromal cells in normal endometrium or in foci of adenomyosis or endometriosis. These tumors are extremely vascular and frequently invade blood vessels.

In 1966, Jensen et al[1] after careful analysis of 15 cases, five of whom had metastases, designated as endometrioid sarcoma the tumor which had previously been termed endolymphatic stromal myosis,[2] endometrial sarcoid,[3] stromatosis,[4] and hemangiopericytoma.[5] In ten of these patients he discovered wormlike extensions of the tumor within the veins of the broad ligament and in three cases the tumor extended to the hilus of the ovary. The further extension of this neoplasm into the inferior vena cava in this case and its successful removal prompt this report.

Case Report

A 59-year-old woman was admitted to the hospital on November 29, 1967, with the chief complaint of vaginal bleeding of several months' duration. This was not associated with pain or weight loss. She also complained of pelvic pressure which felt like she was "sitting on something." Pelvic examination showed an enlarged uterus and a right-sided mass. At laparotomy an enlarged nodular uterus was encountered with a tortuous mass extending from it to the inferior vena cava. She was gravida III para III and six years postmenopausal. Her only previous operation was a hemorrhoidectomy. The family history included a sister, who died of cerebrovascular hemorrhage at age 64, and a brother, of intestinal cancer at age 49.

Physical Examination

Physical examination revealed a well-nourished woman in no acute distress. Positive physical findings were limited to the pelvis, where palpation disclosed an enlarged retroverted uterus and a right-sided mass about the size of a twelve to fourteen weeks gestation.

Laboratory studies showed a hemoglobin of 13.9 mg/100cc, a hematocrit of 42%, a white blood cell count of 5600/cu mm and a normal differential. An SMA-12, urinalysis, and coagulation study were within normal limits.

A chest x-ray showed a small amount of fluid at the left base. An intravenous pyelo-

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Dr. Becker is with the Department of Pathology; Dr. Rosenfeld is with the Department of Obstetrics and Gynecology; Dr. Lev is with the Department of Thoracic and Vascular Surgery; Dr. Pancer is with the Department of Radiology; Dr. Slobodien is with the Department of Surgery, Perth Amboy General Hospital, Perth Amboy, New Jersey.

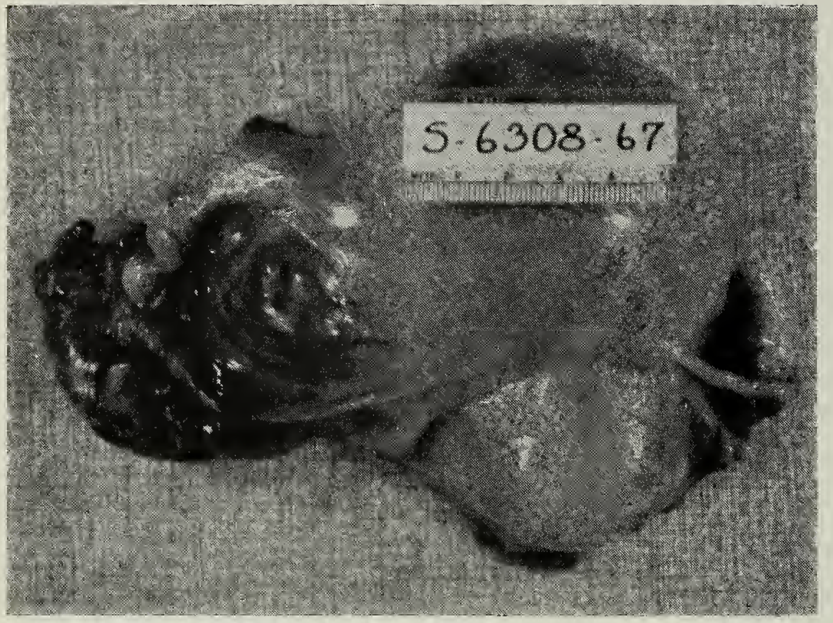

Figure 1
Enlarged Nodular Uterus.

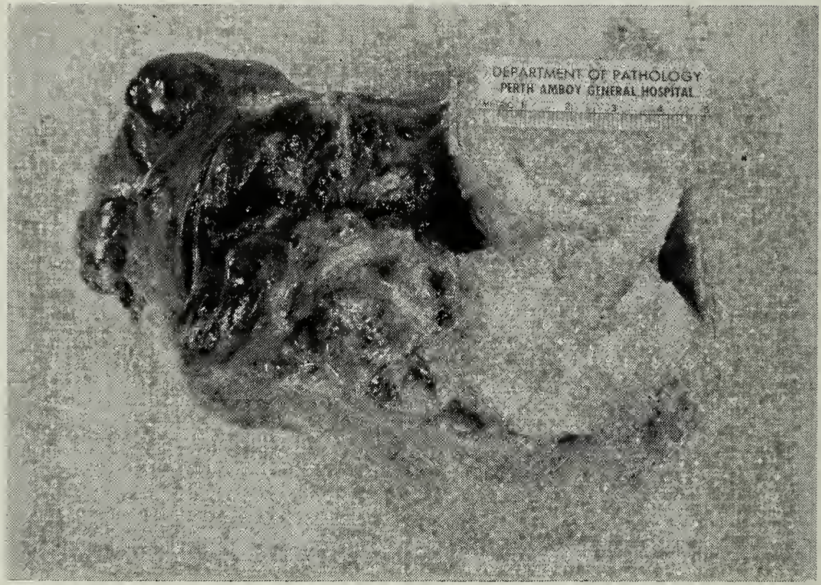

Figure 2
Cut Surface of Uterus.

gram showed pelvic calcifications, probably in pelvic blood vesels, but no renal abnormalities.

An electrocardiogram revealed a slightly depressed RT segment in lead V5.

On November 30, 1967, the patient was taken to the operating room for an abdominal hysterectomy. After opening the abdomen, an enlarged nodular uterus was encountered. A tortuous, sausage-shaped, reddish-purple semicystic mass measuring 6 cm in diameter extended from the right side of the uterus through the right broad ligament. It gradually tapered to a diameter of 4 cm, and then extended up the right pelvic wall, where it appeared to terminate in the inferior vena cava. The mass was biopsied and the frozen section report was, "Vascular tumor, probably malignant." Because of the low abdominal incision and limited exposure, it appeared impossible to completely remove the tumor. It was decided to remove the uterus and do post-operative inferior vena cavagrams to define better the extent of the tumor before further surgery. A supracervical rather than total hysterectomy was performed due to technical considerations in mobilizing the tumor mass. The left side of the uterus was dissec-

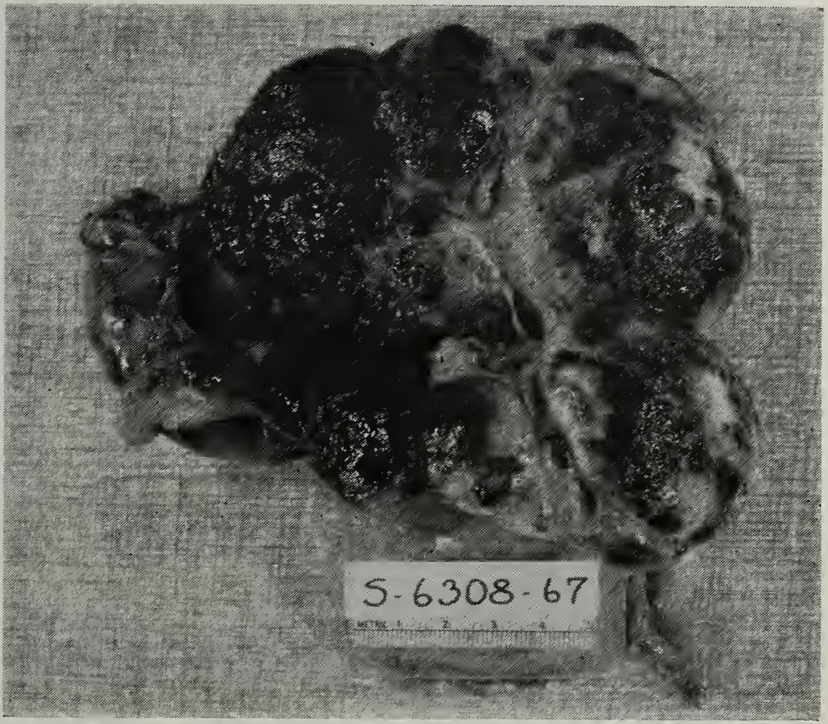

Figure 3
Cut Surface of Tumor Nodules.

ted free and reflected to the right side. The right infundibulopelvic ligaments were identified, suture-ligated, and tied. The tubular mass leading to the inferior vena cava was approached and partially mobilized. It was then cut across and the proximal end was sutured. The hysterectomy was completed and the incision closed.

Pathology Report

The specimen consisted of an enlarged, nodular uterus, fallopian tubes and ovaries weighing 580 gm. The uterus measured 12.0 x 8.5 x 7.0 cm and did not include the cervix. (Figure 1) The fundus contained multiple nodules which varied from 2 to 5 cm in diameter and obliterated the endometrial cavity. The cut surface of one of these nodules revealed the typical grayish, whorled appearance of a leiomyoma (Figure 2), but gross sections of the other nodules showed spongy, black blood-filled tissue (Figure 3), which penetrated through the lateral wall of the uterus into the parametrial soft tissue and terminated as a large tubular structure, 4 cm in diameter. The ovaries and fallopian tubes were not remarkable.

Microscopic examination revealed a highly vascular tumor which appeared to arise in the wall of the uterus. The tumor consisted of stellate cells with round or oval, fairly regular nuclei with indistinct cell borders. The cytoplasm of these cells was eosinophilic and granular, and they were loosely arranged. (Figure 4)

Some sections showed narrow strands of tumor cells separated by venous channels filled with masses of red blood cells. (Figure 5) The endothelial cells lining these channels were flat and not prominent. The tumor cells in these areas showed a greater degree of nuclear pleomorphism with some prominent nucleoli.

Although the tumor was well demarcated from the myometrium, large clumps of tumor cells were seen within dilated venous channels. (Figure 6) The tubular structure described grossly showed a thick smooth muscle wall filled with tumor. The tumor was diagnosed as a sarcoma but since its origin was uncertain, consultations were obtained. One of these suggested the diagnosis of *Endometrial Stromal Sarcoma.* A review of the literature revealed that this case conformed closely to those described by Jensen et al[1] and termed *Endometrioid Sarcoma.*

The patient did well post-operatively with good healing of her surgical wound. On De-

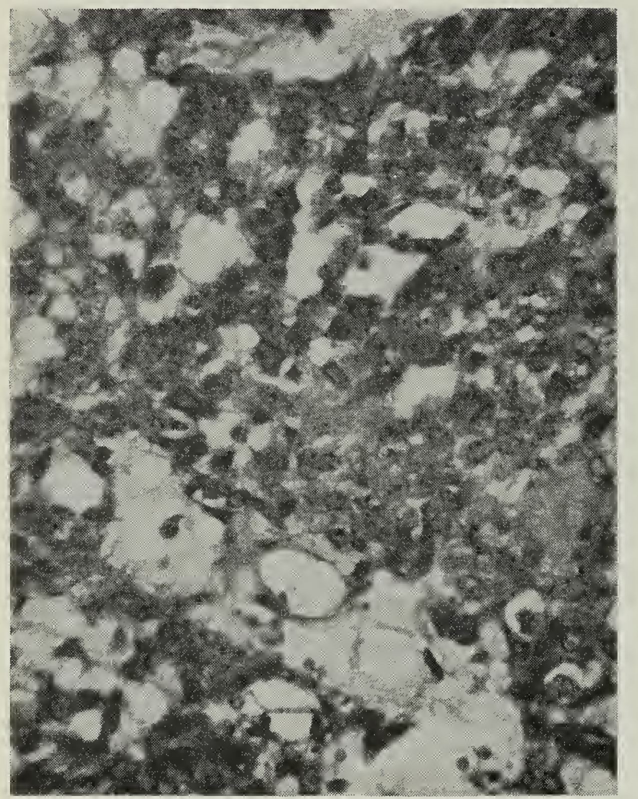

Figure 4
Photomicrograph of Tumor. 430X

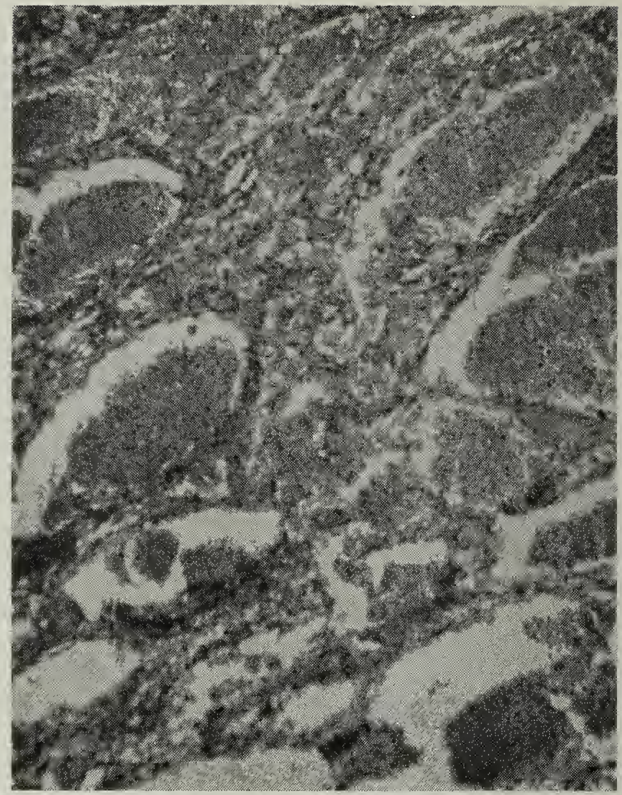

Figure 5
Photomicrograph of Congested Vascular Channels. 100X

cember 11, 1967, (the eleventh post-operative day) an inferior vena cavagram was performed through a femoral vein puncture. It revealed widening of the vena cava beginning at the upper margin of L-4 to T-12, where it resumed its normal calibre. Within the lumen of the dilated portion there was an elongated flame-shaped lucent area (ie, absence of radio-opaque material) from L-4 to T-12, representing tumor or thrombus. (Figure 7) The catheter could be passed easily above the level of the hepatic veins, showing that there was no obstruction. Both renal veins were visualized and appeared free of tumor.

It was decided to re-explore the patient and attempt to remove the tumor completely. On December 14, 1967, under general anesthesia a right paramedian incision was made from the xiphoid process to the pubis. The right rectus muscle was retracted and the peritoneum opened. The right colon was reflected laterally to expose the inferior vena cava. A tubular mass, 14 cm in length and 4 cm wide, was found in the region of the right renal vein, extending upward and into the inferior vena cava at the usual site of insertion of the right ovarian vein. Tapes were placed around the inferior vena cava above the renal veins, around the right and left renal veins and around the vena cava below the level of insertion of the tumor. The tumor was palpated within the vena cava. It extended upward toward the right atrium and into the left renal vein, but the portion within the vena cava was free and moveable within the lumen. The mass was pressed downward below the level of the renal veins, and the tapes were pulled tightly. Since the tumor was attached to the wall of the vena cava at the level of origin of the right ovarian vein, a portion of the cava wall was excised and the intraluminal mass was gingerly removed. A Satinsky clamp was placed over the incision in the vena cava and, after excluding all air, the tapes were released to re-establish blood flow. The caval incision was closed with #5-0 sutures. Examination of the peritoneal cavity revealed no evidence of metastases. A large tense gallbladder with

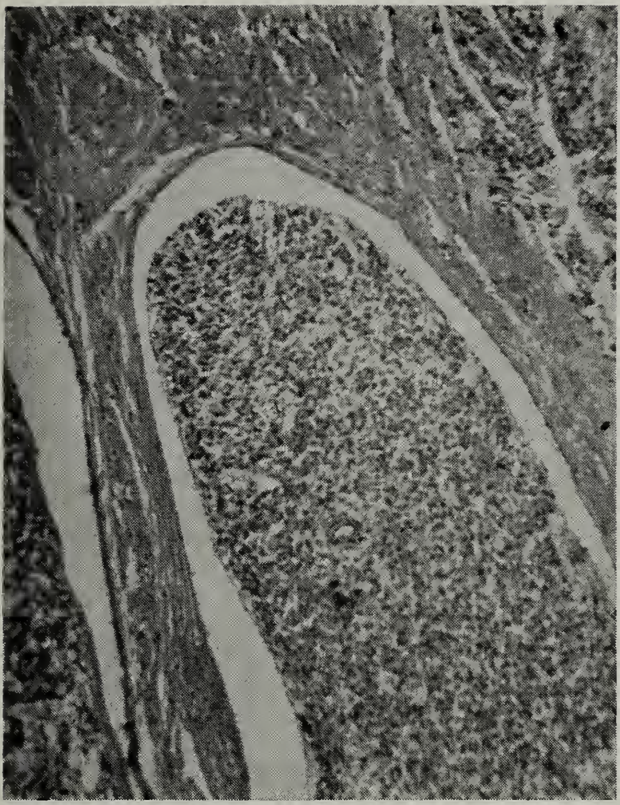

Figure 6
Photomicrograph of Tumor Within Venous Channel. 100X

a stone measuring 1.2 cm was also removed, and the abdomen was closed. Estimated operative blood loss was 200 cc, and the patient was returned to the recovery room in excellent condition.

Pathologic Description

The specimen consisted of a reddish-brown doughy mass measuring 10 x 4 x 3.5 cm and weighing 95 gm. One end tapered to a dark brownish-black smooth round mass measuring 4.5 cm in length and 2 cm in its greatest diameter. (Figure 8) This represented the portion withdrawn from the inferior vena cava. The rest of the specimen included the dilated right ovarian vein filled with tumor. An enlarged gallbladder with impacted stone was also submitted.

Microscopic examination of the tumor revealed findings identical with that seen on the previous specimen from this patient.

Despite her two major operations she had an uneventful post-operative course and was discharged on December 24, 1967.

Discussion

Endometrioid sarcomas arise from stromal cells in normal endometrium or in foci of adenomyosis or endometriosis. They grow in strands or sheets, which freely infiltrate the myometrium and its vasculature. The cells of this tumor have little cytoplasm and fairly regular nuclei although slight nuclear pleomorphism and rare mitotic figures may be seen. Blood vessels are abundant and may be thick-walled arterioles or capillaries and congested venules. The latter predominated in this case. Such findings indicate a tumor of vascular origin, but silver stains showing reticulum fibers wrapped around individual cells rather than vascular spaces point to an origin from endometrial stroma rather than from blood vessels.

The tumor is thought to grow slowly and metastasizes late. It is infiltrative and invades blood vessels, thereby deserving the designation of sarcoma. An example of late metastasis is the case reported by Farrow et al[6] in which a metastatic nodule was found in the femur 22 years after the primary was removed.

The preferred treatment is hysterectomy and bilateral salpingo-oophorectomy. One of four patients in Jensen's[1] series treated by hysterectomy alone had an omental recurrence 6½ years post-operatively.

If recurrence or metastasis occurs, cure appears to be impossible although repeated surgical removal, irradiation, and chemotherapy may lead to long survival.

Other tumors, uterine and extrauterine, extending into or involving the major blood vessels, have been reported. Marshall and Morris[7] described a case of intravascular leiomyomatosis arising in the myometrium and invading several vessels in the broad ligament. They found seventeen other acceptable case reports of this condition in the literature, two of which had tumor extending into the right atrium. Jonasson, Pritchard and Long[8] reported a case of intraluminal leiomyosarcoma which may have arisen in the uterus and involved the right atrium and ventricle, the superior vena cava, and the pulmonary artery. The attempted removal of this tumor was unsuccessful.

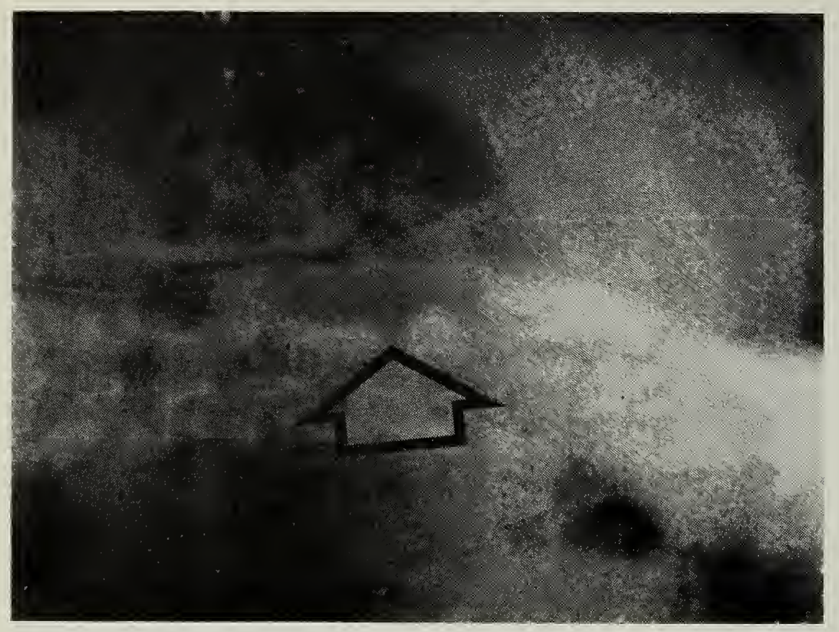

Figure 7
Inferior Vena Cavagram-Flame-Shaped Lucent Defect. (Arrow)

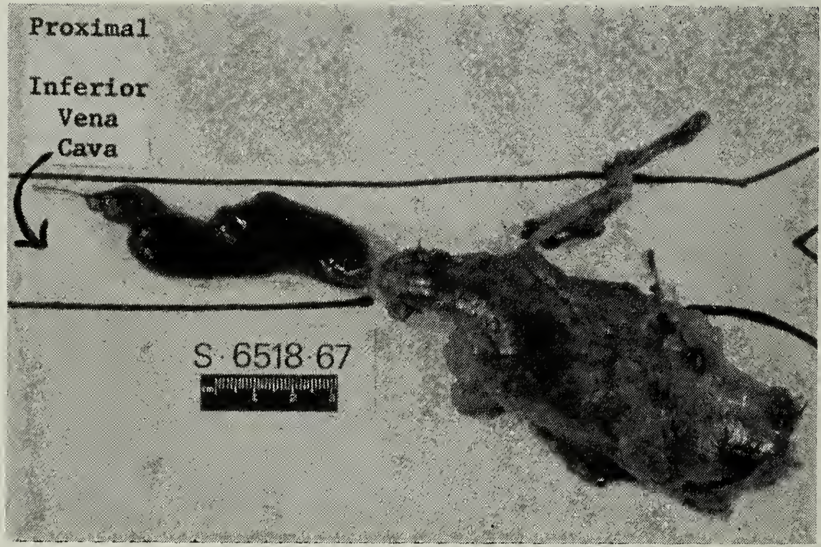

Figure 8
Tubular Tumor Mass With Intra-Caval Extension.

Summary

A case of endometrioid sarcoma of the uterus with extension of the tumor through the ovarian veins and into the inferior vena cava is described. The tumor was removed in two stages. In the first operation a supracervical hysterectomy was performed. After demonstration of the extent of the intravascular extension of the tumor by cavagrams, the remainder of the tumor including its intracaval portion was removed. Angiographic study of the extent of these tumors is mandatory if complete removal is to be accomplished. The presence of intravascular tumor should not be considered a contraindication to surgery. This patient is alive, well, and asymptomatic eighteen months after the surgical resection of her tumor.

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URINARY CALCULUS DISEASE

• A calculus in the urinary tract presents an interesting challenge to the physician to play detective and find out why the body strayed from its normal physiology and manufactured a stone in one of the body fluids.

Richard P. Forlano, M.D.

Although renal colic may be secondary to any of several diseases, often a simple plain x-ray of the abdomen establishes the diagnosis of a urinary calculus. This is because over 80% of urinary stones are radio-opaque. The presence of a non-opaque stone can usually be ascertained after an intravenous urogram or, if needed, cystoscopy and retrograde pyelography. Fortunately most renal calculi pass spontaneously, and surgical removal is necessary only when a complication, such as obstruction or persistent infection, exists. Even though the patient passes the stone, a diligent search should be made to ascertain its cause and to prevent any possible recurrence. It is the purpose of this paper to discuss the evaluation and management of the patient with urinary calculus disease.

Etiology

There is seldom a single cause of stone formation in the individual patient, and usually many factors must be considered in planning a treatment regimen for the stone victim.[1] We know that in some cases hyperexcretion of calcium, uric acid, oxalate, or cystine may be involved, and obviously dehydration increases the concentration of these substances in the urine. On the opposite end of the spectrum, it has been shown that the decreased excretion of magnesium and pyrophosphates increases the likelihood of stone formation. In some cases the urine pH is a major causative factor because it alters the solubility of various substances. Infection, in addition to damaging tissue, often leads to an alkaline pH, which will cause the precipitation of phosphates. Foreign bodies in the urinary tract serve as a baseplate for deposition of minerals. The importance of this is obvious when one sees how rapidly a Foley catheter can become encrusted. Randall[2] long ago described small calcified plaques on the papillae which slough and serve as a nidus for stone formation. It was long thought that a protein matrix was essential for the growth of a calculus, but now we know that stones grow in urine from which all protein has been removed. Often stones form in the obstructed urinary tract because the stasis of the urine leads to retention of nuclei which normally pass unnoticed but now are retained and increase in size.

In spite of all the above possible causes of a calculus, we can often narrow down these factors to a choice few in each individual, particularly if we know the type of stone. Interestingly the converse is true: if we know which factors are present, we can often predict the type of stone we are going to find. Before discussing the individual stone types we should know something about the current methods of stone analysis.

Stone Analysis

Every stone former should have at least one stone recovered and analyzed. It is currently our practice to mail the stone to one of the special labs which have the equipment for a good and surprisingly economic analysis. The methods employed are as follows:

Dr. Forlano is Resident in Urology, Wilmington Medical Center.

A. Petrographic analysis
  A skilled technician can recognize the different types of stones by their crystal structure, using a polarized light microscope. This is currently the best practical method for general purposes.

B. X-ray diffraction
  This is reserved for problem stones because it is costly; however, it is the most accurate technique available.

C. Paper chromatography
  This is seldom used and is of benefit mainly for identifying amino acid components.

D. Chemical analysis
  Winer[3] described a qualitative chemical analysis performed on an artist's porcelain spot plate by which one can identify the presence of all the major components of stones. It is a very simple cookbook type of test but is not practical for mass analyses. It is better suited to individual hospital use if quick results are desired.

Using the knowledge of the type of stone involved, we can now discuss how each particular type of stone former can be managed.

The Phosphate Stones

Phosphate is the major anion of stones in about 20% of cases and exists as either calcium phosphate (apatite) or magnesium ammonium phosphate (struvite). It is of paramount importance to remember that a phosphate stone will not form in an acid urine. Phosphates in urine precipitate when the pH is above neutral. Since the normal urine pH is 6 and only 1% of normals run a pH of 7, then the phosphate stone former must have an abnormally high urine pH. Although bicarbonate ingestion or the use of Diamox can alkalinize the urine and lead to phosphate stones, infection with urea splitting organisms is the cause of the high urine pH in the vast majority of cases. Proteus is the major urea splitter and the most frequently cultured organism in the infected stone former. Some E. coli staphylococcus may also be involved.

The stone former who has a persistent alkaline urine and a negative urine culture should be checked for the presence of renal tubular acidosis. Here even the minor case has a consistently alkaline urine whereas the more severe case develops metabolic acidosis in addition. Apparently the defect rests in the inability of the distal tubule to secrete hydrogen ion and instead secretes potassium. The oral ingestion of acidifying agents fails to lower the urine pH in the patient with renal tubular acidosis, and this has formed the basis of a diagnostic load test using ammonium chloride. This group of patients tends to form calcium phosphate calculi because of the alkaline urine and the increased excretion of calcium which is also seen in this disorder.

Diagnostically, it should be remembered that pure calcium phosphate is the most dense and radio-opaque of all stones. Calcium oxalate is second in opacity, and magnesium ammonium phosphate is a distant third. Magnesium ammonium phosphate can be suspected when a staghorn calculus is seen because it is the most common cause of staghorn growth.

From the above information the management of the recurrent phosphate stone former becomes obvious. Of course, foreign bodies and obstruction should be eliminated, but we should also attempt to acidify the urine. Remember that this cannot be done in renal tubular acidosis or until infection with urea splitting organisms is eradicated. Ammonium chloride is one of the best acidifiers to use. Methionine and vitamin C have been used, but cranberry juice is impractical and ineffective.

The Oxalate Stone

Oxalate is the most common component of all stones and is found as calcium oxalate. It has been reported to comprise 50% to 80% of stones in large series. Usually they are small stones, dark in color, and spiculated. Obstruction and infection are not causative factors here although they may appear later as a result of the presence of a stone. Urine pH is usually normal. In the vast majority of cases the etiology is not known. A few cases are secondary to hyperparathyroidism. Some are secondary to the metabolic disorder, hyperoxaluria.[4] These individuals excrete more oxalate than normal, ie, greater than 50mg/24 hrs. It is believed that there is an inherited enzymatic defect present with variable penetrance. In the most severe form we see the condition of oxalosis where there is diffuse deposition of oxalate crystals throughout the body culminating in an early death. Pyridoxine has been found to decrease oxalate excretion in hyperoxaluria. Pyridoxine inhibits the synthesis of oxalate and has been used by various investigators with variable results. Oral phosphate ingestion has been found to inhibit the crystallization of calcium oxalate by increasing the phosphate level in the urine. In 1964 Moore and Bunce[5] found that magnesium ingestion increased urine magnesium levels and also inhibited oxalate stone formation. Most recently Boyce in 1967[6] suggested the use of methylene blue in a dose range of 60 mg per day as a crystal poison for the prevention of recurrent stone formation.

The Uric Acid Stone

Uric acid stones are not uncommon and present more of a diagnostic problem than a treatment problem. They are usually small and pass spontaneously. They rarely form staghorns. About 20% of patients with gout form uric acid stones sometime in their lives. However, most patients with uric acid stones do not have gout but simply hyperuricemia. A few uric acid stone formers have normal serum uric acid levels. This latter group maintains a very acid urine, and this leads to uric acid precipitation in the urine. We know that alkalinizing the urine has a tremendous effect on increasing uric acid solubility.[7] Less than 10 mg/100 cc will remain in solution at pH 5 whereas 1500 mg/100 cc remains in solution at pH 8. Thus sodium bicarbonate administration is a great aid in preventing uric acid stone formation. Attempting to lower the amount of uric acid excreted in the urine by diet control is of no merit. Even the most rigid low purine diet will lower serum uric acid by only 1 mg/100 cc. Allopurinol is the best agent to lower urate production. Xanthine and hypoxanthine serum and urine levels rise during treatment with allopurinol, but these substances are very soluble in the urine and to date xanthine stones have not posed a problem.

Both allopurinol and bicarbonate should be used on patients being treated for leukemia where urate excretion is expected to be high.

The Cystine Stone

Cystinuria is a not uncommon hereditary disorder characterized by increased excretion of not only cystine but also cysteine, arginine, ornithine, and lysine. It is believed to be carried by a recessive gene and exists in various degrees of severity. Only the cystine is a problem with stone formation because the other amino acids involved are quite soluble. The homozygous patients have the largest 24-hour excretion of cystine, and these are the ones who form stone. If stone formation is to occur in a patient with this defect, it occurs early in childhood and is often unrelenting. High fluid intake, low methionine diet, and alkalinization of the urine have been of some use. However, the diet is difficult to follow and alkalinization must be carried up to pH 8 to be of any benefit. This can in itself be harmful by causing phosphates to precipitate. D-penicillamine, a degradation product of penicillin and a structural analog of cystine, has been effective in a dose of 2 grams per day.[8] It acts by combining with cysteine and producing a more soluble compound than the cysteine or cystine alone. More recently Librium[9] was reported to be effective in inhibiting cystine crystal formation and may also have a place in the treatment of this disorder.

Conclusion

Several aspects of diagnoses become obvious in attempting to find the etiology of a stone. Petrographic stone analysis is of paramount importance. Repeated serum calcium and phosphate levels should be done to screen the patient for hyperparathyroidism. The 24-hour urine for total calcium while on a standard 150 mg calcium diet is also useful in this regard. Primary hyperoxaluria can be checked for by a 24-hour urine for oxalates. Serum uric acid determination is a must. If cystinuria is suspected, there is a very simple semiqualitative cyanide/nitroprusside urine test for cystine. An approximate knowledge of urine pH should be acquired. It should be ascertained whether infection or obstruction is present. The intravenous urogram is essential to determine the degree of obstruction, but a KUB film will suffice to follow the progress of a stone down the ureter.

(*Continued on page 224*)

CLIMATOLOGY AND MEDICINE

Article III

Lewis B. Flinn, M.D.

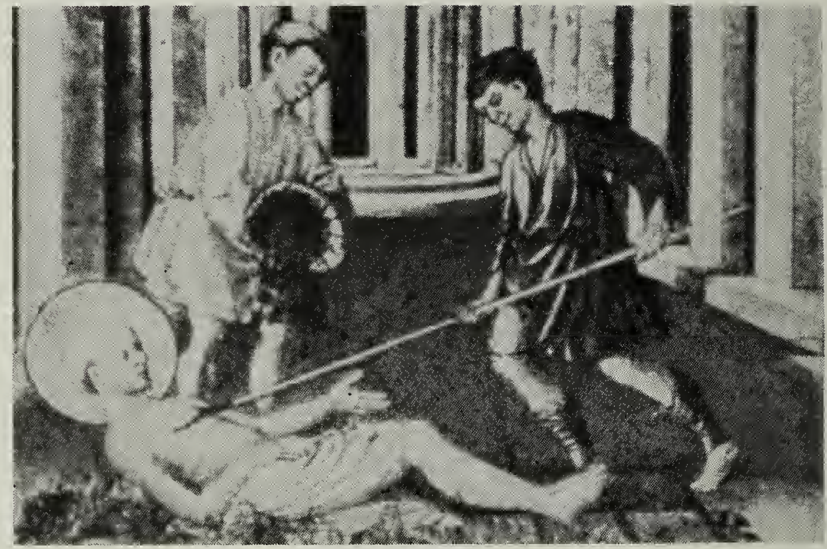

Figure 3
St. Lawrence, forced in 249 to lie on a grate heated by glowing coal, became the patron saint of backache sufferers.

In the second article of this series, the account of medical history and climate ended with the fall of Rome in 476 A.D. During the next 500 years, the weather continued warm and dry. The center of activity of civilization was in Constantinople, capital of the Byzantine Empire. There were considerable church dogma and much recording of the past, but not much original intellectual activity. The church officially controlled medical practice. Many of the prominent diseases were identified with patron saints such as St. Artemis with genital affliction, St. Sebastian with pestilence, Job with leprosy, and St. Lawrence with backache. Cure for each malady was brought about through propitiation of its special saint. St. Lawrence's suffering is portrayed in Bettemann's[1] *A Pictorial History of Medicine* as shown in Figure 3.

From 500-1000 A.D., the climate continued warm and dry, and it was excessively hot in the year 850. This was the period of the Dark Ages in Europe. In 600 A.D., this warm, dry period, which seemed to stultify most of the world, gave birth to Islam. This great movement coming at this time has been explained in part by the fact that the Bedouins were restless. Living in the desert at this period was most difficult, and they were on the march. It was an opportune moment for an extraordinary personage such as Mohammed to organize and develop a new religion and ultimately an empire in the Middle East, extending along the southern Mediterranean shore and Spain. For several centuries, Islam really carried the torch of medicine. Rhazes, Avicenna and Maimonides were prominent physicians in Spain. They excelled in knowledge of alchemy and established a pharmacopoeia, but exhibited little medical originality and, in general, followed the precepts of Galen. Medicine in Europe at this time was really in the doldrums for it was controlled by the church; the monks copied and filed medical knowledge. For a short period medical practice was almost non-existent.

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Dr. Flinn is Honorary Physician, Department of Medicine, Wilmington Medical Center.

Highlights

THE CHANGING ASPECTS OF SURGICAL PRACTICE IN THE GREATER DELAWARE VALLEY

JONATHAN RHOADS, M.D. — *Chairman, Board of Regents, American College of Surgeons. Delaware Chapter Meeting, March 25, 1969*

Surgical practice will continue its trend toward specialization, "with more people knowing more and more about less and less," a trend which necessitates physician teamwork.

Medical centers will also reflect this trend toward specialization by becoming increasingly concentrated. Although small hospitals will not be abandoned, the construction of any future hospitals containing fewer than 200 beds is unlikely.

Patients need the resources of a large medical institution. This can frequently be arranged by transfer to a larger hospital, but transfer is sometimes resisted by both the patients and the hospitals. The medical profession and the public must become increasingly aware that transfer between health facilities is desirable. Increasing mobility of medical staff among hospitals will also become a reality.

Extended care facilities, in theory, should be able to effect savings for patients who need care, but extended care should be kept under the same roof as acute care. When the two types of facilities are separated, the continuity of care is interrupted and costs increase.

Dr. Rhoads expressed a personal preference for long-term continuation of the fee-for-service system in preference to the salaried physician system. His principal objection to the salary system is its "second generation effects." Because opportunities are somewhat blunted, the profession appears less attractive to highly-qualified people who might otherwise wish to enter it.

The presence of a medical school directly benefits the patient, and therefore a hospital that is affiliated with a medical school should have the right to add a surcharge to the bill. This would probably be accepted by patients who could be convinced of the benefits that accrue even though insurance carriers at first might protest.

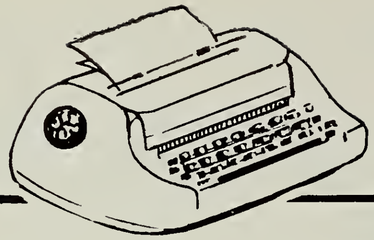
The cost of professional liability insurance is rapidly rising, and the doctor needs protection against having his life-savings wiped out by a single suit. There is thus a need for hard luck insurance for the case that can happen to anyone, whether it is the unavoidable accident or negligence. If the corporation (ie, the hospital) is going to enter the practice of medicine, it should be willing to indemnify its physician employees against claims.

Dr. Rhoads is cool to the idea of absolute dependence on reexaminations of surgeons, which could result in the denial of the right to practice after having been certified by a board. A better approach would be to require the surgeon to attend a specified number of refresher courses with no reexamination.

The Wilmington area is the most likely site for the location of a new medical school in the Delaware Valley in the next twenty years. The Regional Medical Program in the Delaware Valley is limping because of restrictions currently imposed on it by Congress but has great promise.

In recognition of his help in organizing the Delaware Chapter of the American College of Surgeons, Dr. Rhoads was presented with the first award for service by Dr. Leslie Whitney, Governor of the Delaware Chapter. The silver platter was engraved with a citation for his contributions to surgery.

Abstracted by Pierre L. LeRoy, M.D., F.A.C.S., President, Delaware Chapter.



Special Reports

THE 28th INTERNATIONAL CONGRESS ON ALCOHOL AND ALCOHOLISM IN WASHINGTON, D.C.

September 15-20, 1968.

Howard Reed, M.D.

The representation at this meeting from so many countries (France, Australia, Sweden, Yugoslavia, Norway, Hungary, Chile, Canada, Japan, United Kingdom, Thailand, Netherlands, Czechoslovakia, Belgium, Romania, Ireland, Poland, and Costa Rica) made it evident that all countries have similar problems with alcohol.

It was generally accepted that alcoholism should be considered a disease. Leon Fleck, member of the French High Commission for Study and Information on Alcoholism, pointed out that the physician should tell the general public the truth, not moralize, and consider alcoholism neither a vice nor a crime. He recommends sobriety, not abstinence. He uses weekly articles in the French newspapers to educate the public about alcoholism. The results have been slow, but are worth perseverance and doubling of efforts.

It was brought out that physicians in general have a poor understanding of the method of handling the alcoholic. Private physicians tend to refer or unload the alcoholic on someone else, or give no more than lip service in solving the patient's problem.

The Alcoholism Congress made it clear that neither the medical profession nor anyone else has made adequate efforts to treat alcoholism. Alcoholics are still turned away from the majority of hospitals; medical schools do not train physicians in the treatment of alcoholism. Ruth Fox, M.D., Medical Director of the National Council on Alcoholism in New York City said, "Doctors are not unwilling to treat alcoholics, but they don't know how."

Many of the speakers emphasized the use of chemical drugs in therapy. But combined addiction, chiefly in alcoholics, to tranquillizers and stimulants, but not to narcotics or to the psychedelic drugs, is being noted. Drugs specifically mentioned as being used by many young alcoholics under the age of 30 include tranquillizers such as meprobamate, chlordiazepoxide, and diazepam, stimulants such as the amphetamines, and the sedatives.

Since withdrawal troubles from these different drugs occur at different intervals, an individual may pass through one set of symptoms after another over a period of one to two weeks depending on how many of these drugs he has been using. Many of the chemical addiction problems arise from a growing faith in what is called "instant comfort," a notion that the individual can swallow something to make him feel right.

Centers such as the Pilgrim State Hospital in New York, the Atlantic Center, and the RCA (Rehabilitation Center for Alcoholics) at Occoquan, Virginia, are doing outstanding jobs in working with the derelict alcoholic. Most of these institutions use AA as one of their better methods of rehabilitation of the alcoholic. In the outpatient clinics such as the one operated in Washington, D.C., group psychotherapy as well as antabuse is being used with varied success.

THE DELAWARE LADY DOCTOR, WIFE AND MOTHER

Marjorie J. McKusick, M.D.

In order to present as complete a picture as possible of the modern wife-mother who also happens to be a practicing physician, to the Macy Foundation at its recent symposium on Women in Medicine, I sent a questionnaire to each of my married female colleagues in New Castle County. Of the 18 questionnaires sent out, 12 were completed.

The age range of the 12 doctors was wide, the average being 49, so this is a group of older women with well-established careers. The average age at the time of marriage was 28 years. Five are married to physicians and seven to a variety of non-medical, largely professional men. The average number of children is three.

The average number of years of post-doctoral training was 3½ years, ranging from 0 to 6½ years. Five of the twelve are certified by one of the American Boards, and all are in part- or full-time practice now, or have been in the recent past.

Questions relating to the problems and rewards of combining practice with family life provoked various answers.

Four listed household help as their biggest problem. Four listed insufficient time or spreading themselves too thin as their greatest challenge. Two stated that having to move with their husbands had disrupted their careers to a degree, yet none listed the husband per se as their biggest problem. Indeed, seven indicated the husband to be the biggest asset; two, the housekeeper; one, her keen and sustained interest in her work.

Five women felt they had not neglected their families, but five said at times they felt they had. Only three felt they had neglected their practice because of their family, but they qualified it by saying they limited their time, not the quality of care delivered.

Only four women felt they would not change anything in their practice. Three thought they would have liked more specialization; three felt they should have practiced less; and only one stated emphatically that she would not practice at all if she were starting over.

In all cases, Delaware was the husband's choice as a place to live. However, most women were satisfied with this choice and did not feel there was any more prejudice against women physicians here than elsewhere in the United States. Three, however, felt there was not always equal opportunity for women, particularly in the upper echelons of the medical hierachy, such as hospital staff appointments, committee heads, etc.

Although most feel that women often do not make full use of their medical training, they would still advise a girl to enter medical school if she were interested.

I questioned what qualities they felt a girl entering medicine today should have, and the composite picture resembles a superwoman. A few of the attributes of this ideal woman are stability, intelligence, versatility, patience, compassion, stamina, dependability, self-assurance, a sense of humor, and the ability to choose the right husband.

We all feel there are greater opportunities for women in medicine now than ever before. When asked why then so few women enter medical school in this country compared to European countries, the answers were:

1. It is not considered a feminine profession.
2. Girls are encouraged to marry and have families.
3. The training is too long and too expensive.
4. The quota for women in the medical schools is low.
5. Medical schools and parents are hesitant to make the investment in a girl for fear it will be wasted.
6. The culture in Europe is different. There, the MD degree is comparable in time and prestige to an MA in liberal arts in the United States. Socialization in Europe makes day care nurseries and baby-sitters more available, and education cheaper.

The final question I asked my colleagues was: How can we encourage more women to enter medicine? The most frequent answer was the provision of part-time training programs after medical school. One member said simply, "Let us set them a good example."

The ladies' biggest problems are inadequate domestic help and the limitations of time. Husbands are considered the greatest asset. Most feel they have done an adequate job in the home and in practice, and have a more rewarding life than their non-medical peers.

THE DIAGNOSIS AND TREATMENT OF LIPID TRANSPORT DISORDERS

• A scientific manuscript prepared by the American Heart Association, Inc., for the Delaware Heart Association.

Robert I. Levy, M.D.

All the blood lipids circulate bound to specific proteins. When lipid transport is viewed in terms of these lipid transport proteins (lipoproteins) rather than in terms of any individual lipid (cholesterol, triglyceride), greater specificity and definition can be imparted to the study and understanding of lipid transport disorders.

The differentiation of hyperlipoproteinemia may be accomplished by sequential preparative or analytical ultracentrifugation. For most clinical purposes simpler electrophoretic system are adequate. Using paper or agarose gel electraphoresis one can obtain patterns that correlate well with ultracentrifugal patterns and at a fraction of the cost. Lipoprotein electrophoresis on paper and gel is rapidly becoming a routine procedure offered by many commercial and hospital laboratories.

There are at least five abnormal lipoprotein patterns that may be associated with hyperlipidemia. Each pattern is distinguished by an increase or abnormality in one or more of the normal serum lipoproteins. The lipoprotein patterns are not necessarily specific for a single disease. They may be primary, many of which are also familial, or secondary to a host of different acquired disorders. The abnormal patterns are accompanied by clusters of clinical manifestations that allow them to be considered different syndromes.

Type I. This lipoprotein pattern is indicative of an inability to clear dietary fat (chylomicrons). It is nearly always familial and in its severe form a rare disorder. The patients are usually young and have creamy plasma, lipemia retinalis, hepatosplenomegaly, eruptive xanthomata and bouts of abdominal pain associated with ingestion of dietary fats. After standing in the cold a discrete cream layer forms in the plasma of these patients. Plasma cholesterols may be normal or elevated; triglyceride concentrations are grossly elevated (often above 5,000 mg%). The familial disorder is recessively transmitted and is characterized by a deficiency in one or more of the enzymes involved in the clearance of fat from the circulation. Therapy is relatively simple. Diets low in fat result in a dramatic clearing of the hypertriglyceridemia and resolution of the associated abdominal complaints. There is no effective drug available now for the treatment of Type I. Supplementation of the diet with medium chain length triglycerides (MCT) often makes the diet more palatable.

Type II or hyperbetalipoproteinemia is a common pattern found at all ages. It is characterized by a marked increase in otherwise normal beta lipoproteins. Though the plasma is almost always clear, cholesterol levels are often in the 300-600 mg% range with normal or only modestly elevated plasma triglycerides. Type II patients may have xanthelasma, arcus juvenalis and tendon and tuberous xanthomata. Of note is the associated premature coronary vessel disease and the often striking family history of early death. This

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Dr. Levy is Head, Section on Lipoprotein, Laboratory for Molecular Diseases, National Heart Institute, NIH, Bethesda, Maryland.

makes it important for all physicians to recognize that the Type II abnormality is often familial and transmitted as a dominant trait with essentially complete penetrance. Though the Type II pattern may be secondary to excessive dietary cholesterol intake, myxedema, myeloma, liver disease or nephrosis, these causes can be quickly evaluated; and when ruled out, a Type II patient's family should be screened for the patient's mother or father and 50% of the patient's siblings and children (diagnosable as early as age one) will have hyperbetalipoproteinemia. Therapy for all of the second hyperlipoproteinemias should be directed at the acquired problem, ie, thyroid replacement for myxedema. When this is not possible or the disorder is primary, specific therapy should be directed to the hyperlipoproteinemia. Dietary therapy for Type II emphasizes a reduction in cholesterol content to below 200 mg per day (avoidance of eggs, many dairy products, and fatty meats) and consumption of increased amounts of polyunsaturated fats. Most of the drugs available for hyperlipoproteinema have little effect. Cholestyramine, a bile acid sequestrant, in doses of 16-32 gms per day, has resulted in impressive reductions in cholesterol and betalipoprotein levels. With the combination of a low cholesterol diet and cholestyramine lipid levels can often be brought into the normal range in the Type II subject.

Type III is a relatively uncommon pattern associated with the presence of plasma of abnormal beta lipoprotein forms. Patients have clear, cloudy or milky plasma with elevations of both cholesterol and triglyceride concentrations into the 350-800 mg% range. These patients often present in the third or fourth decade with planar xanthomata (orange-yellow lipid deposits in the creases of the palms of the hands) as well as tuberoeruptive (elbows, knees, and buttocks) and tendon xanthomata. Commonly, both premature coronary and peripheral vessel disease occurs. Type III is usually familial and apparently transmitted as a recessive trait. Dietary therapy for Type III emphasizes calorie control and a diet balanced in fat, carbohydrate, and protein and low in cholesterol. Clofibrate, 2 gms per day, is delightfully effective, especially when coupled, with the balanced therapeutic diet: it results in a complete normalization of plasma cholesterol and triglyceride concentrations, resolution of external xanthomatosis and apparent improvement in peripheral vessel flow.

Type IV is a very common lipoprotein pattern, most frequently seen after the second decade of life and often associated with diabetes mellitus and premature atherosclerosis. It is characterized by an isolated increase in endogenous triglyceride (prebetalipoproteins). The plasma may be clear, cloudy or milky depending upon the triglyceride concentration. Cholesterol levels are frequently normal. The patients usually have no external stigmata. The pattern sometimes reflects a familial disorder transmitted as a dominant with delayed expression. It may be that several different mutations are responsible. It is often, however, secondary to other metabolic disorders and whether primary or secondary it is usually exacerbated by obesity. Dietary therapy emphasizes reduction to ideal body weight, and reduction in the carbohydrate and alcohol content of the diet with a concomitant increase in the amounts of polyunsaturated fats. Diet therapy alone often results in total normalization of the plasma lipids in Type IV. Drugs like clofibrate, D-thyroxin and nicotinic acid have been variably effective.

Type V is frequently seen secondary to acute metabolic disorders like diabetic acidosis, pancreatitis, alcoholism and nephrosis though it may be familial. Patients with Type V usually become symptomatic after age 20 and may have all the features of Type I: creamy plasma, hepatosplenomegaly and bouts of abdominal pain often with frank pancreatitis. The patients often have multiple abdominal scars after years of occult abdominal pain. They appear to be intolerant to both dietary and endogenous fat and have triglycerides in the 1,000-6,000 mg% range with mildly to markedly elevated plasma cholesterols on an unrestricted diet. Abnormal glucose tolerance and hyperuricemia are frequently associated. Diet therapy emphasizes caloric restriction, reduction to ideal body weight and a diet high in protein and low in carbohydrate and fat. Clofibrate,

(*Continued on next page*)

Letters to the Editor

To the Editor:

German measles is on the increase this year. Our experience with the epidemic of '63 and '64 indicates that there will probably be many children with residual conditions such as impaired hearing, behavior problems and learning disabilities. At the present time we are finding many children from the last epidemic who are now in the first grade where they are for the first time being diagnosed as having hearing problems due to rubella.

Both the infant and the pregnant woman are at "high risk." Physicians are asked to report by telephone to the nearest Board of Health county office, the names and addresses of any pregnant women who have been exposed to or have contracted rubella during their pregnancy, so that their patients may be part of the case-finding program of the State Board of Health, Division of Crippled Children Services. Registered infants will receive invitations to take advantage of the Hearing Conservation Program which is now equipped with specialized apparatus to enable testing of even very young infants. Infants whose mothers have had rubella during pregnancy should be examined for manifestations of chronic complications at a very early date.

Telephones to which reports may be communicated:

Wilmington Health Unit — 658-9251
New Castle County Health Unit — 994-2506
Kent County Health Unit — 734-5711 (Ext. 400)
Sussex County Health Unit — 856-2571

Catherine B. Middleton, M.D.
Director of Maternal and
Child Health Services
Delaware State Board of Health

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LIPID TRANSPORT DISORDERS

(*Continued from page 223*)

D-thyroxin, nicotinic acid, may all modestly reduce the triglyceride concentration, but often not to a significant degree.

The importance of going beyond the simple determination of cholesterol and triglyceride should be apparent. Five different types of hyperlipoproteinemia have been briefly characterized and discussed. Each is associated with a specific lipoprotein pattern, that may be familial or acquired. Each is associated with specific clinical and laboratory signs and at least three of the Types (II, III, and IV) are associated with premature vascular disease. Each type responds differently to dietary manipulations and specific drug regimens. Perhaps for the first time, it is now possible for the clinician to apply relatively specific therapy to the patient with a lipid transport disorder.

URINARY CALCULUS DISEASE

(*Continued from page 217*)

Causes of urinary calculi fall into several distinct groups. It is not necessary or even practical to do all the tests available in any one patient, but rather, one should be selective. Likewise treatment of the recurrent stone former should be tailored to the particular patient depending on the nature of his stone.

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Editorials

OUT, OUT, RED SPOTS!

The world is so full of large problems that it should be a relief to us to have one at least which is at the present time capable of resolution. Measles, always a discomforting disease and sometimes a very serious one when associated with such complications as encephalitis, pneumonia, or otitis media, is totally preventable by immunization. Moreover, the State Board of Health will supply vaccine to physicians for their use when patients can't afford it, or administer the vaccine to anyone who cannot afford private care. Yet in the first three months of this year, there were 99 cases of measles reported (and how many more actually?) in Delaware. This amounts in our mind to unforgivable negligence on the part of physicians who care for children or adolescents who are not definitely known to have been immunized or to have had measles. What is our excuse?

B. Z. P.

THYROID NODULE: Some Further Comments

In some respects, Dr. Graham's paper raises more questions than it answers. The crucial clinical question is the management of the thyroid nodule. Experience in this field is almost always biased by a medical or a surgical point of view, and it is possible to cite figures to back almost any stand. Our own subjective experience suggests that thyroid scanning may help in evaluating thyroid nodules.

In the daily management of the thyroid nodule, the following program has been helpful to us. Some conscientious physicians in their hope to catch early thyroid cancer, probably became too concerned about the minute nodule. While these cannot be ignored, evaluation by scan is usually not too helpful because of the small size. Probably some of the difference between the surgical and medical evaluation of nodules is related to this problem of minute nodular irregularity of the thyroid surface. A very firm, discreet area, although small, can be more significant than a larger and less firm, discreet area, so size alone isn't the complete criterion, but it does make some difference. It is not worthwhile to operate on every palpable irregularity of the thyroid.

When a nodule is one to two cm or larger, a thyroid scan can determine if it is hot, cold, or cool. Hot nodules are not significant surgical problems as a rule since cancer in a hot nodule is so rare as to be reportable. A hyperfunctioning nodule, with obvious hyperthyroidism, can easily be suppressed with radioactive iodine. Although years ago this was thought to be a surgical problem, we now realize this is one of the better types of hyperthyroidism to treat with ^{131}I. Since the rest of the gland is protected, one can give a large dose of radioactive iodine with little concern about eventual development of hypothyroidism. The radioactive iodine is not taken up by the suppressed gland, which will therefore begin to function normally after the hyperactive nodule is controlled by the radioactive iodine.

We have a little more of a problem with suppression of the rest of the gland when dealing with the euthyroid patient with a hyperactive nodule. This has been more frequently recognized in the last several years. Some, but not all, of these patients become overtly hyperthyroid later. It has been demonstrated that surgical removal of such a nodule will usually result in a return to normal activity of the rest of the gland. Radioiodine can apparently be used in the same fashion, but we hesitate to use it as a rule under these same circumstances, although it may be the preferred approach. In general, we have been conservative and have been willing to follow such patients since some, if not most, of these hyperreactive nodules resolve spontaneously. Some therapists do prefer to treat this type prophylactically either surgically or with radioactive iodine. Often these nodules do not suppress too well with thyroid therapy as they are usually autonomous. On the other hand, surgical treatment is usually not necessary from the point of view of the fear of tumor.

With the cool nodule, we must emphasize the need for the scan interpreter to see the patient and feel the gland. A nodule is cool because of nonfunctioning thyroid tissue such as adenoma, cyst, thyroiditis, or tumor. With mild to moderate diffuse decrease in function, one may be concerned about thyroiditis, local or general, There is not the same degree of urgency for the patient with a mildly cool nodule as with a cold nodule. A nodule that shows mild decrease in function, or relatively normal function, is probably the best one to treat by suppression therapy, using up to 3 grains of thyroid per day. A cool to cold nodule may be shown by stimulation with TSH to be functioning thyroid tissue. If so, the nodule is less suspicious for tumor.

With a frankly cold, firm nodule in a young individual, there is little argument about the need for a surgical evaluation. In general, we have tended to feel that multiple nodules point toward benignity, but one must remember that this is not always true. Hemorrhage into a cyst may give the appearance of a cold nodule. A proper clue to this or to thyroiditis is usually obtained from the history, plus the findings of pain and tenderness. Occasionally one will be surprised to find a firm, hard, single nodule is functioning thyroid tissue and probably does not require surgery.

It should be remembered that the fact that a nodule is suppressed by thyroid does not completely rule out cancer or the need to follow the patient carefully. However, in view of the known nature of thyroid cancer, if one does treat a tumorous nodule with thyroid suppression therapy, probably no great harm is done in terms of end results.

In conclusion, one has to have an adequate history, examination of the gland, and sufficient laboratory work, including scans, in order to decide whether a nodule is significant, and whether it merits suppression therapy, observation, or surgical exploration with biopsy. Whether one treats by observation, by suppression therapy or by surgery, follow-up clinical observation is an essential part of any program.

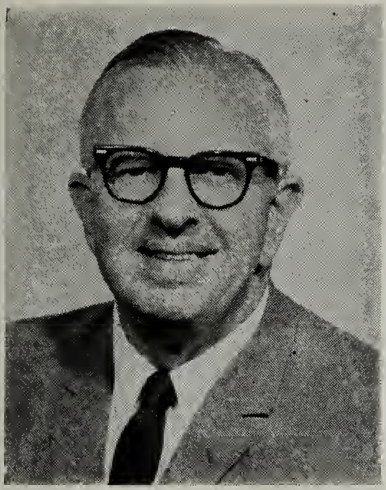
ROBERT W. FRELICK, M.D.

PATIENT ORIENTATION VERSUS DISEASE ORIENTATION

Patient-oriented practice exacts a heavier toll of the practitioner than does disease-oriented practice. To take care of a disease as a thing taxes the doctor less emotionally than to take care of a person . . . The lure of scientism in medicine may be recognized as part of the noninvolvement of our age. If we can keep our eye on the patient's disease, we may be able to ignore his human distress. . .

American medicine, if it is to retain any rational, meaningful relationship to the American people, must establish as its central function, the care of the human being and the approach to his disease as a process affecting the whole person . . .

The one medical talent without which all others are essentially meaningless is the ability to meet a patient as a person, to assess the real causes of his distress, to compose a logical and practicable plan for meeting his needs, and then to manipulate any and all of society's resources that are required to solve that patient's specific problem. (James E. Bryan, *A Summary Report on the Regional Conferences on Comprehensive Medical Care for the American Family.)*



President's Page

THE MALPRACTICE MENACE

All physicians of the state are acquainted with the problems related to professional liability and malpractice. These problems are increasing in magnitude. Not only has the cost of premiums continued to rise, but the number of suits and the amount of awards have increased beyond reason. In Delaware the insurance carrier has been permitted to increase the physicians' premiums more than 100%. In some states physicians have been unable to meet the high cost of premiums for coverage of negligent acts of resident physicians whom they are training. In some instances, physicians have been unable to obtain any type of malpractice insurance. Help must come by actions of the American Medical Association or the State Medical Society; as proven during the recent session of our Delaware Legislature, the involvement of Delaware physicians and our society can be effective in securing passage of desired legislation.

At the same time, it must be realized that appeals to government are not without danger. A legislature might be persuaded to change rules of evidence, limit the amounts of awards, and require patients to submit to arbitration.

Bad results cannot be eliminated completely, but let us remember that a satisfied patient does *not* sue.

As recommended by a recent editorial in the *Newsletter* of the American Society of Anesthesiologists, follow these directives:

Do not undertake a case which should not be done, no matter how much pressure is put upon you by the patient.

Do not do a case in any way or by any method other than by the one you know is best, no matter how much pressure is put upon you.

Do each case as carefully as you would want it done if you were the patient.

Do make sure the patient understands what you are going to do.

Do make known to the patient your fees.

While we all have an obligation to expose malpractice and must be prepared to testify if necessary against a fellow physician guilty of malpractice, it must also be remembered that a difference of opinion is not necessarily malpractice.

Charles M. Moyer

Delaware Academy of General Practice

NEW RESIDENCY PROGRAM IN FAMILY MEDICINE

The Department of General Practice of the Wilmington Medical Center is in the process of setting up a three-year residency program in Family Medicine. The need for physicians in family practice is urgent at present and will reach critically low levels in the next five to ten years unless the ranks can be filled by younger physicians starting their training programs now.

To do an adequate and thorough job in caring for today's many complex family problems, a doctor certainly needs much more post-graduate training than he receives in either a straight or rotating internship.

In December, 1968, at their meeting in Miami, Florida, the AMA recognized the urgency of this situation and finally raised the status of General Practice to that comparable to other medical and surgical specialties.

The planning committee of the General Practice Department has reviewed numerous residency programs in other hospitals and submitted to the membership a detailed three-year program which encompasses most of the aspects of Family Practice. The program covers a three-year period and is individually tailored to the needs and ideas of each participant. It is structured vertically to allow him as much time in each subject as he desires and horizontally to see that he is instructed in all the subjects that are required for certification by the Board of Family Practice.

The training will include pediatrics, curative and preventative internal medicine, obstetrics, psychiatry and non-operative gynecology. He will be taught how to handle traumatic surgery, both general and orthopedic and the follow-up care of acute trauma. Also included will be the sociology of family structure and the interrelations of family stress to disease and emotional reaction, and the medical economics and medical care in relation to sociologic studies and social patterns. Two other non-clinical features will be learning the structure of his own personality and its impact on patient care techniques and patterns, and the organization, planning, economics and operation of a medical office, whether it be in solo or group practice.

The first year of the program will consist of a special internship in the Wilmington Medical Center. If he has interned elsewhere, a two- to three-year program will be formulated depending upon how much time he has had in pediatrics and internal medicine during his internship.

There will be three major groupings in the general plan: 1. Intensive in-patient experience in internal medicine and pediatrics, with additional experience in episodic trauma (Emergency Room) and diagnostic and operative gynecology (Obstetric experience will be on an elective basis.); 2. Supportive educational experience including group psychiatric discussions and a continuing assignment to neurotic and psychotic patients in the setting of the Delaware State Mental Health Clinic; specific formal courses (at the University of Delaware) in sociology, psychology, accounting and business management, and computer logic at a basic level; and observational experience in selected family practice offices within the area; and 3. A coordinated setup in a structured family practice clinic within the Wilmington Medical Center which hopefully will enable the resident to build up a family practice that will follow him as his private patients when he leaves the confines of the hospital.

This is a brief summary of the long detailed program set up by the planning committee. It will require the cooperation of all members of the General Practice Department and the assistance of the members of the other specialty departments.

It should be emphasized that this is still in the planning stage and has not been submitted to or approved by the Education Committee of the Wilmington Medical Center. Hopefully it will be a step in the right direction to provide more family physicians for our community.

H. F. Wendel

In Brief

Speakers on "Ask the Doctor"

Speakers for August, 1969, on the Tuesday radio program, (11:05 a.m. WDEL) produced by the Medical Society of Delaware are: August 5, Morton Keyser, M.D., *Menopause*; August 12, Mark G. Cohen, M.D., *Risk Factors in Heart Disease;* August 19, John F. Gehret, M.D., *The Pill;* August 26, Donald Schetman, M.D., Contact Dermatitis.

In the News

Alfred Lazarus, M.D., has been elected to fellowship in the American College of Physicians. Newly designated as associates of the college are Walter Powell, M.D., and Stanley Verbit, M.D.

Robert A. McGregor, M.D., Wilmington, Delaware, has been elected President-Elect of the Pennsylvania Society of Colon and Rectal Surgery for the 1969-1970 year.

Essay Prize

The subject for the Caleb Fiske Prize Essay of the Rhode Island Medical Society for this year is *Medical Education in the Years Ahead.* The essay must be typewritten, double spaced, and should not exceed 10,000 words. A cash prize of $500 is offered. Essays must be submitted by December 15, 1969. For information write: The Secretary, Caleb Fiske Fund, Rhode Island Medical Society, 106 Francis Street, Providence, Rhode Island 02903.

The Month In Washington

The Internal Revenue Service plans to audit the federal income tax returns of physicians and other health practitioners who have received more than $25,000 a year in medicare and medicaid payments. The first of a series of public hearings has been held by the Senate Finance Committee in its investigation of the rising costs of the two government health care programs. The Department of HEW had agreed to require intermediary insurance carriers to use physicians' social security numbers on reports of payments under the program in the future. The initial audits would be for 1967 and would be limited to those receiving more than $50,000.

Finance Committee Chairman Russell B. Long (D., La.) said that the investigation by the committee's staff so far showed "widespread abuse, and fraud, as well as lax administration."

The Nixon Administration wants congressional authority to stop medicare payments to doctors who overcharge, use inferior supplies or engage in fraud.

Robert M. Ball, social security administrator, said, "A bigger problem than outright fraud is cases that don't quite become fraud."

Commenting on the hearings, Dwight L. Wilbur, M.D., president of the AMA, said that the vast majority of physicians serving medicaid patients are not over-charging for their services.

Under the HEW regulation, a state's medicaid payment to a physician for a service will be limited, with one exception, to the 75th percentile of the customary charge — the maximum customary fee is 75 percent of

Medicare and Medicaid Payments to Physicians

the physicians in the area. If a state has been paying more than the 75th percentile of the customary charge, it must not exceed the medicare level, which is about the 83rd percentile. After July 1, 1970, states may request permission to increase physicians' fees above the 75th percentile if two conditions are met:

1. The average percentage increase requested above the 75th percentile on January 1, 1969, may not exceed the percentage increase in the all-service component of the Consumer Price Index (adjusted to exclude the medical component) or in an alternate index designated by the Secretary of HEW.

2. Evidence must be clear that the providers and the states have cooperatively established effective utilization review and quality control systems.

Despite a strong protest by the American Hospital Association, HEW discontinued the overhead medicare-medicaid percentage allowance paid to hospitals, extended care facilities and other institutional providers. It was two per cent for non-profit and one-and-one-half per cent for proprietary institutions. The action was effective July 1, 1969.

Another new medicaid regulation requires states to provide periodic health screening, diagnosis, and treatment for all eligible youths under 21 years of age, effective July 1, 1969.

Prevention of Blindness Society

The use of ultrasonic vibrations may soon make cataract removal minor surgery, according to Charles D. Kelman, M.D., whose method was described at the National Society for the Prevention of Blindness Annual Conference in May. Dr. Kelman, director of cataract research and attending surgeon, Manhattan Eye, Ear and Throat Hospital, New York City, has said recently that his experimental technique has been used with success on more than 70 patients. The ultrasonic method allows full mobility from the first postoperative day.

Dr. Kelman's technique "produced visual results in all cases similar to what could be expected from standard cataract surgery." The standard surgical procedure for the removal of an opacified lens (cataract) requires an incision of 21 millimeters; and suturing requires from four to eight stitches. The average recovery period calls for a week's stay in the hospital and from four to six weeks of home recuperation.

Dr. Kelman's technique involves making an incision not more than two millimeters in size and inserting a needle which is vibrating at an ultrasonic frequency of 40,000 cycles per second. The cataract is emulsified by contact with the vibrating needle; and the contents are removed by suction through the hollow center of the needle. The incision requires only a single suture.

Safety Eyewear

It was reported that Wisconsin Senate Bill 251 requiring safety eyewear in all Wisconsin school and college laboratories and shop classes was headed for the governor's signature. Twenty-eight states have already passed such legislation, based on a National Society for the Prevention of Blindness model law.

ACEP Organized

The increasing patient loads in Emergency Departments across the country has underscored the need for a new type of physician—a specialist in emergencies: the Emergency Physician. A nucleus of physicians chartered the *American College of Emergency Physicians* and has organized the College on a nationwide basis. The main purposes are to improve emergency services rendered to the patient, to encourage and implement the training and continuing education of emergency physicians, to promote policy which preserves the integrity of private practice, to promote coordination of community emergency care facilities and personnel, to advance the ethical standards of the private practice of emergency medicine and surgery.

For information, write: Executive Sec., ACEP, 120 W. Saginaw St., E. Lansing, Mich. 48823, or the representative in your area: Don Wenger, M.D., George Washington Univ., 2029 G., N.W., Washington, D.C. 20306.

CLINICAL NOTICES AND MEETINGS

International Symposium

An International Symposium will be held August 28-29, on *The Impact of Drug Legislation on the Drug Industry,* at the Gottlieb Duttweiler Institute, Ruschlikon, Zurich, Switzerland.

Nutrition and Metabolism

The Committee on Nutrition and Metabolism of the Philadelphia County Medical Society will hold its 14th Annual Conference on October 22 in the auditorium of Temple University Medical Center. For further information contact: Michael G. Wohl, M.D., Chairman, or Charles R. Shuman, M.D., Philadelphia County Medical Society, 2100 Spring Garden Street, Philadelphia.

Postgraduate Programs

The Division of Maternal and Child Health of the University of California School of Public Health at Berkeley announces postgraduate programs for physicians interested in receiving training in the field of *Maternal and Child Health.* Applications are now being accepted for the group entering in July or September, 1970. For information write: Helen M. Wallace, M.D., School of Public Health, University of California, Berkeley, California 94720.

Pharmacology and Dermatology

A three-day symposium on *The Pharmacology of Selected Drugs Used in Dermatology: Principles of Action and Uses* will be held October 29-31 in Alumni Hall, New York University Medical Center. Detailed information may be obtained from: The Office of the Recorder, New York University Postgraduate Medical School, 550 First Avenue, New York, N. Y.

Rehabilitation Medicine

New York University Medical Center, Department of Rehabilitation Medicine will offer a full-time course on *Clinical Electrodiagnosis of Neuromuscular Diseases,* November 11-14. For information write: Joseph Goodgold, M.D., Institute of Rehabilitation Medicine Research Pavilion, New York University Medical Center, 400 East 34th Street, New York 10016.

Clean Air

The 5th Annual Symposium on Air Pollution and Respiratory Disease, sponsored by the New York State Action for Clean Air Committee, will be held on October 23 at New York University Medical Center. For further information write: New York State Action for Clean Air Committee, 105 East 22nd Street, New York 10010.

The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

DRUG ABSTRACTS

Hospital Law

In the past the courts have agreed to the principle that "hospitals do not practice medicine." It was argued that only physicians are licensed by law to practice medicine, and therefore, hospitals could neither practice medicine nor control the actions of physicians. But the law is changing. In *Bernardi v. Community Hospital Assoc.*, 443P. 2d 708 (Colo., 1968), the court held the hospital liable for the negligence of a registered nurse, employed by the hospital, in giving an injection which injured the sciatic nerve and caused permanent foot drop in a 7-year old patient. The principle of law under which the hospital was held liable is commonly referred to as *respondeat superior* — that is, let the employer answer for the negligence of a servant or agent. The court declared: "If we were to rule that *respondeat superior* does not apply (in this case) because the hospital is not licensed as a nurse, then it would seem to follow that an airline should not be liable for the negligence of its pilot because the airline is not licensed to fly an aircraft."

In the Bernardi case the court rejected a preoperative consent form signed by the parents when the child was admitted to hospital. The court noted that a hospital is completely within its rights in requiring that a patient or his parents consent to an operation after being properly informed. However, the hospital cannot couple with this a complete release of blanket liability.

Curran, W. J. (Harvard School Public Health, 55 Shattuck St., Boston, Mass.) New England J. M. 280:316 (Feb. 6), 1969.

Drug Interactions — Ritalin Hydrochloride

Methylphenidate (Ritalin) hydrochloride in therapeutic dosage raised the serum levels of primodone (Mysoline), diphenyl-hydantoin and phenobarbital in a mentally retarded epileptic child. Diphenyl-hydantoin levels increased from therapeutic to toxic levels with production of ataxia. (Ritalin also increases imipramine (Tofranil) and desipramine (Norpramin, Pertofrane) serum levels.) Experiments in adult patients showed that Ritalin slows the rate of disappearance of ethyl biscoumacetate (Pelentan, Tromexan) from serum. It is suggested that enhanced anticoagulant action may occur in the presence of Ritalin.

Garrettson, L. K. et al. (Emory School Med. Atlanta, Ga. (Dr. P. G. Dayton)), JAMA 207:2053 (Mar. 17), 1969.

Valium — Status Epilepticus

Valium (diazepam-Roche) is a useful drug in management of patients with status epilepticus, but its use, with other drugs, is not without danger. Of 25 patients with status epilepticus treated with Valium, one developed respiratory depression and five experienced hypotension. All of the six patients had been given intramuscular phenobarbital in addition to intravenous Valium. Two patients who developed severe hypotension (one died) had also been given parenteral paraldehyde. The danger attendant on a synergistic action of barbiturates with Valium may eventually be shown to exist for a variety of other drugs.

Bell, D. S. (Rozelle, N.S.W., Australia), British M.J. 1:159 (Jan. 18), 1969.

Parnate-Amphetamine — Hyperpyrexia

Within a few hours after taking a 10 mg. Parnate (tranylcypromine) tablet and one Dexamyl Spansule (10 mg. dextroamphetamine and 65 mg. amobarbital) a 41-year-old nurse developed progressive agitation, hyperkinesis, hyperpyrexia, coma, opisthotonus, and convulsions. The temperature which exceeded 109F for 30 minutes, was rapidly lowered by total immersion in an ice bath. Additional supportive measures were applied and the patient recovered, without sequelae, after 20 days in hospital. Hyperpyrexia of this degree following the simultaneous ingestion of Parnate, a MAO inhibitor, and dextroamphetamine has not been previously reported.

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CROSSED RENAL ECTOPIA WITHOUT FUSION

• Crossed unfused renal ectopia is a fairly rare anomaly which is usually detected incidentally because of bizarre lower abdominal symptoms. A case is reported in which gestational difficulties occurred. The patient was treated with nephrectomy by transabdominal method.

Gottfried J. Ressel, M.D.

Ectopic kidneys produce no symptoms unless diseased. But even without disease they may cause referred pressure pain in lower abdomen, enuresis, urinary frequency, or, in women, complicated pregnancy or dysmenorrhea. They often drain insufficiently and are poorly nourished because of inefficiency of their abnormal blood supply. These kidneys are frequently the site of disease, especially hydronephrosis, infection and stone formation. They are easily injured, and functional disturbances because of pressure exerted upon them by adjacent structures are not rare. In women, they may cause pain in the lower abdomen which is mistakenly ascribed to the genital organs.

Case Report

A 21-year-old white woman was admitted to Wilmington Medical Center on January 17, 1969, with symptoms of recurring urinary tract infection, severe headaches for the past ten years, pain in lower abdomen and back, dysuria, stress incontinence and occasionally left CVA pain. During pregnancy in 1966 her abdominal discomfort increased until towards the end of her pregnancy she was in agony, requiring narcotics. Her delivery took two days during which time she nearly became psychotic. She finally was delivered of a stillborn baby. The patient was subsequently treated for depression by a psychiatrist. She became again pregnant in 1967 and again had severe pain throughout the latter part of her pregnancy, mainly in her back and lower abdomen. She was delivered with extreme difficulty and was advised either to have tubal ligation or to have her uterus removed.

Because of her recurring urinary tract infections, an intravenous pyelogram was taken in the early part of 1968 which showed a crossed renal ectopia. Retrograde pyelogram showed her right kidney to be malrotated and malformed and located to the left of the midline in the lower pelvis while the left kidney was in normal place, of normal size and shape. Because of the nature of her previous pregnancies and the continuous pain in her back region, it was decided to remove the ectopic kidney.

The kidney was approached by transabdominal, transperitoneal route from a right pararectus incision. The blood supply was traced to the lower abdominal aorta and one branch to the left common iliac artery. The venous drainage was to the left common iliac vein and one branch of the vena cava. The ureter was very short and crossed over to the

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Dr. Ressel is Associate in Urology, Wilmington Medical Center, Wilmington, Delaware.

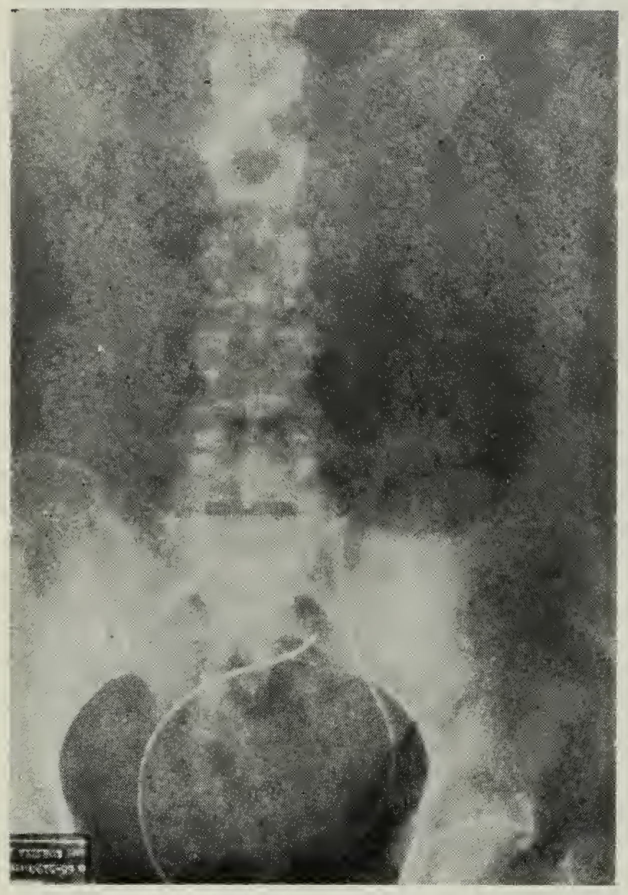

Figure 1
Ureteral catheters in both ureters showing the right catheter crossing over to the left side.

right side. The procedure was done with minimal blood loss; no drain was placed in the abdominal cavity. The patient was discharged on the sixth post-operative day. Surprisingly, her headaches disappeared on the day of operation. Gross anatomical examination revealed an irregularly shaped and malrotated kidney with some congestion around one of the calyces. The renal parenchyma had fairly normal appearance. Histological examination was normal.

Discussion

Ectopia of the kidney is due to interference with the upward migration of the metanephros during early embryonic development. The probable etiological causes are vascular obstructions, faulty ureteral buds, pelvic anomalies developing at that stage, defective metanephros, genetic defects or maternal illness in early pregnancy.

The metanephros, which is originally located in the small pelvis, opposite the second sacral segment, gradually shifts its position; in about the eighth week of gestation it is opposite the first four lumbar vertebrae and has established contact with the embryonic adrenal gland. During its ascent the kidney receives its blood supply through temporary vessels which arise from the aorta, the common iliac, external iliac arteries, the middle sacral artery and other neighboring vessels. The permanent blood supply is not established until the embryo is 20-25 mm long; the final position of the kidneys has now been reached.

If the normal migration of kidneys is interfered with or ascent is mechanically prevented by some anomaly of adjacent organs that pushes the kidney out of its normal course, these ordinarily temporary vessels may become permanent and fix the kidney at the point where interference of migration occurred.[1]

Ectopic kidneys have been described in positions from the thoracic cavity to the true pelvis[2,3]. The ectopia may be ipsi- or contralateral in position. In spite of the ectopic position of the kidney the adrenal gland usually remains in its normal anatomical position. (The adrenal gland, composed of a cortex and medulla, differs embryologically from that of the kidney. The adrenal cortex is derived from sympathochromaffin tissue.)

In crossed renal ectopia one kidney is displaced to the opposite side below its counterpart which is usually in normal position. In about 85% of these cases the joining poles of the kidneys are fused, producing a so-called tandem or sigmoid kidney, but when the two kidneys are not fused the ectopic kidney is almost always the lower one. Whether fused or not the ureters open in their normal position into the bladder, that of the transposed kidney crossing the midline to the opposite side. In crossed ectopia as in simple renal ectopia the anomaly is found more often on the right side. Crossed renal ectopia without fusion remains a very rare anomaly. Up to 1965 only 59 cases were reported with two additional reports by Lino J. Arduino[4] which brings the total number of reported crossed unfused kidneys to 61. Fortune[5] emphasized that about two-thirds of female patients with ectopic kidneys have anomalies such as unicornate uterus, bicornate uterus, double uterus and absent adnexae.

In the early phase of embryonic development the renal pelvis faces anteriorly. As the kidney ascends it also rotates around its long axis so that when it reaches its final position, the pelvis lies medially with the calyces laterally. Interference with ascent is usually accompanied by failure of the kidney to rotate or by incomplete rotation; the renal pelvis therefore remains anteriorly.[6] No satisfactory explanations as to how the kidney may be displaced to the opposite side of the body have been offered.

Diagnosis

Excretory urography has been of great aid in discovering many unsuspected cases of renal ectopia. Retrograde pyelograms are important to demonstrate pelvic deformities and pathological conditions of the displaced kidney. Aortograms are helpful in outlining the blood supply of the ectopic organ. Occasionally palpation of a mass in lower part of abdomen may suggest the possibility of ectopic kidney.

Indications for Operation

Infection in ectopic kidney may sometimes be treated by ureteral dilation with renal pelvis lavage and the use of an indwelling ureteral catheter and antibiotics. Surgery, however, is often necessary to relieve obstruction, remove calculi, or when there is extensive destruction of the renal substance. In women, a pelvic kidney will often interfere with gestation and its removal may be indicated for this reason. Since such kidneys frequently lie upon the great vessels, extreme care is essential when severing adhesions which are always around the diseased kidney. Subcapsulary removal is sometimes advisable when nephrectomy is indicated.

In 1953, S. Diaz[7] of Columbia reported the first case of crossed renal ectopia without fusion to be treated by successful fixation of the transposed organ in its normal position. All previously reported surgical cases had been treated by nephrectomy. Surgical transposition was made possible by the constitution of the pedicle and the length of the main vessels.

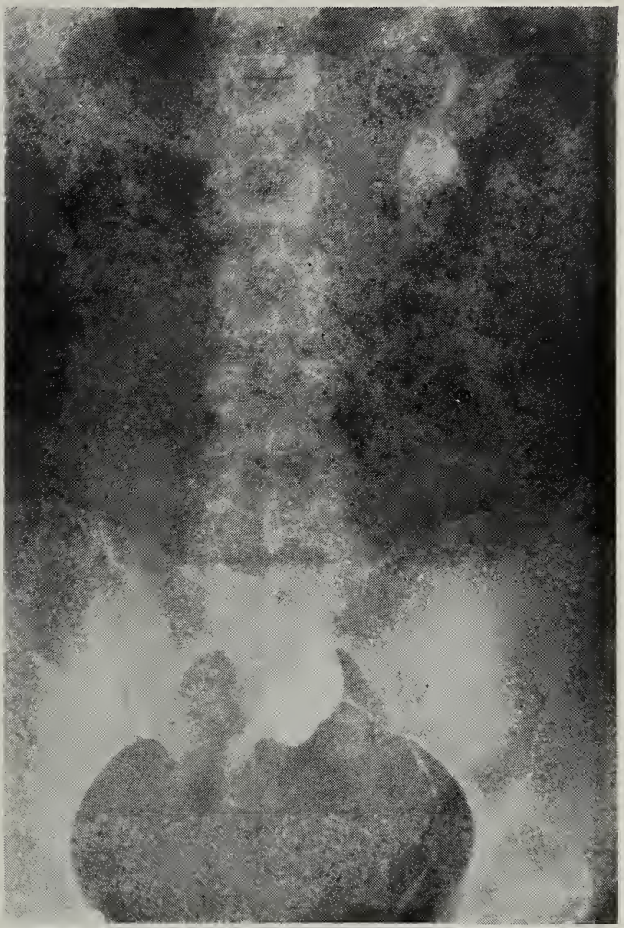

Figure 2

Retrograde pyelography showing the right renal pelvis lying to the left of the mid-line. The left kidney in normal position.

Summary

A case of crossed renal ectopia without fusion has been presented. Nephrectomy was performed transperitoneally through an abdominal approach without any difficulties. It was interesting that the headaches which had plagued the patient during the past ten years disappeared on the day of the procedure.

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HEALTH CARE SYSTEMS FOR DELAWARE

• **Voluntary agencies and institutions in Delaware are tending to become systems. Government agencies and institutions are consolidating under the "cabinet" concept to become systems within the framework of State Government. Unless these two developments coincide, comprehensive planning for health services must remain a fiction.**

RICHARD R. GRIFFITH

One of the most interesting publications to come out of Washington in recent months is the one entitled, *National Advisory Commission on Health Facilities: A Report to the President.* It is concerned with principles which seem to be based upon full knowledge of existing practices and problems. The following excerpts from this report[1] sum up what needs to be done now in the field of health care, not only nationally, but specifically, in the State of Delaware:

> "The efficient utilization of health resources as parts of a systematic approach can solve the total health problems of families. New trends and programs in national health policy reflect an increasing attention to planning, organization, and delivery of health services. The Nation has begun a transition to systems.
>
> "America's health care systems should combine private and public responsibility. Facilities and systems will vary from community to community in accordance with local capacities and local needs, but some guiding principles should govern the effort to develop effective and efficient health care systems:
>
> 1. These systems should be organized to assure appropriate points of entry into and continuity of health care services.
>
> 2. Every citizen should have ready access to quality health care.
>
> 3. States, regions, local communities, and all health institutions should carry out continuous planning.
>
> 4. Both those who provide and those who consume health services should participate in the decisions.
>
> 5. All levels of health care should be interdependent."

From Delaware's point of view, there are two questions: (1) What have we done to accomplish more effective and efficient health care systems? and (2) What must we do to make these systems more effective? In discussing the first question, we are pretty much limited to the decade of the sixties.

Developing Health Care Systems in Delaware

In 1961 the Hospital Board of Review was established as an advisory group to avoid duplication of services and facilities in the general hospitals of New Castle County and perhaps in the State.

The Nursing School of Wilmington was established in 1962, making possible the phasing out of three existing schools of nursing, namely, the Wilmington General, Memorial and Delaware.

In 1963 (August 20th) the Joint Hospital Management Committee held its organization meeting to replace the Hospital Board of Review. The Joint Hospital Management Committee recommended the corporate merger of the Wilmington General, Memorial and Delaware Hospitals after study of alternative plans on March 4, 1964. This merger created the Wilmington Medical Center, which came into being in the fall of 1965.

The Wilmington Medical Center, the University of Delaware, and Jefferson Medical

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[1] *National Advisory Commission on Health Facilities*: A Report to the President, December 1968. Additional copies may be obtained at the office of the Association of Delaware Hospitals, Inc., Wilmington.

Mr. Griffith is Executive Director of the Association of Delaware Hospitals, Inc., Wilmington, Delaware.

College are now seeking the establishment, not only of undergraduate education for Delaware but also of graduate and effective continuing education for practitioners of medicine and related disciplines within the state, leading to improved medical services for all of our Delaware population. This educational development was a major reason for the establishment of the Wilmington Medical Center.

The merger of the three hospitals and the subsequent activities of the Wilmington Medical Center emphasize the fact that systems of health care in this day and in the foreseeable future need not be limited to hospitals per se or to the geographical boundaries of a state. They may extend over much larger areas and may encompass programs other than the program of a general hospital. The Greater Delaware Valley Regional Medical Program gives emphasis to the concept.

The Health Planning Council (formerly Health Facilities Planning Council) came into being several years ago as a voluntary effort in New Castle County to organize the resources of the community and to promote the economical development of health services. This Council has proved its value many times, not only as a storehouse of information pertaining to the field of health, but also as a guiding light to the institutions and agencies interested in expanding or becoming established. Certainly, this Planning Council has contributed greatly to the avoidance of unnecessary expenditures of funds and duplications of activities. More than that, it has contributed to the growth of existing programs in such a way that areas of service not previously provided may be covered in the very near future by more effective means than otherwise might have been conceived.

Hardly had the Health Planning Council come into being than the effect of federal legislation (P.L. 89-749) became apparent through the State's Department of Health. The Health Department established its own Department of Comprehensive Health Planning, which not only works closely with the Health Planning Council, but with all other planning agencies in the State.

Normally, we do not consider homes for the aged specifically as health services, but it is impossible to provide this type of care for the old without also getting into the question of the health of older people. The welfare agencies of Delaware, the United Community Fund and the Community Services Council, along with the Home of Merciful Rest and others, have been interested in, and in some degree have achieved, consolidation of services, ie, the development of a system. But long-term care is also increasingly provided by corporations for profit operating chains rather than by single institutions.

Orientation of Systems

Collective effort is not limited to New Castle County hospitals and health services. Institutions in Kent and Sussex Counties also tend to work together in an effort to find answers to their problems. Joint purchasing opportunities are under study. Contract negotiations with the Blue Cross and Blue Shield Plans also have been a joint endeavor. The Inter-Agency Council of Sussex County is made up of some 40 to 50 agencies, including hospitals, who are concerned with the proper and effective development of Sussex health and welfare programs.

The Association of Delaware Hospitals, Inc. reflects the trend toward systems. This is an old organization founded in the early forties, but now reorganized and updated to deal with the problems of the sixties and seventies. This organization is primarily concerned with education, not only of people employed in hospitals and other health agencies, but also of the general public, professional groups, the General Assembly, or anyone whose concern about the field of health or participation in the field of health warrants the educational effort.

The Association of Delaware Hospitals is concerned with the cost of health services, but its daily activities are more directly related to the reduction of cost in operating programs. At this time there are two main endeavors in the Association: 1) the development of more effective inservice educational programs in all health agencies, and 2) cooperating with curriculum planners in public or private schools to establish better understanding of modern health services, how to gain access to these services and how to derive maximum benefit from them. It is obvious that health agencies working together, rather than singly, can accomplish both these educational programs much more effectively.

What Is to Be Done?

It is neither reasonable nor safe to discuss hospitals as entities unto themselves, individually or collectively. To discuss all health services as they relate to each other is essential. Institutions delivering health care in Delaware are operated by state and federal government, churches, voluntary nonprofit corporations and corporations for profit. Each, to some extent, is dependent upon the other. Fund-raising promotional agencies, limited geographically and clinically, are concerned with specific diseases and conditions, such as tuberculosis, heart disease, cancer, crippling diseases, muscular dystrophy, and a host of others.

Relating these agencies and institutions to the five "guiding principles" quoted at the beginning of this article:

1. Entry into what we loosely call our "health care system" is not assured.

2. "Ready access to quality health care" does not exist for every citizen.

3. Continuous planning in "States, Regions, Local Communities, and all Health Agencies" does not exist in Delaware. Communication between agencies, voluntary or government, is either non-existent or ineffective. Communication with organized medicine is so difficult to achieve that even the stouthearted will usually not attempt it. The problem of communicating with MD's is critical because the physician is the pivot upon whom much planning must turn.

4. To some extent "those who provide and those who consume health services participate in the decisions." The providers, ie, boards of trustees, generally come from a narrow segment of society. This selective quality of self-perpetuating boards deprives many consumers of the opportunity to serve.

Too often the role of trustee is poorly played. Occasionally the trustee participates with full knowledge and understanding and to good effect guiding and assisting the executive by establishing policy and insisting that the policy be followed. More often the enthusiastic trustee embarks upon doing the job himself to the detriment of the organization structure and the effectiveness of the program. The great majority of trustees neither understand the problems nor participate, preferring to let an active minority manage the affairs of the agency or institution. Even a benevolent oligarchy defeats the purpose of the Board.

Much thought has been given to ways and means to (a) introduce trustees to programs intelligently, and (b) sustain trustees' interest in a manner that would promote maximum effectiveness.

Thinking to date has not produced encouraging results.

One thing is certain. If the present crop of trustees — most of whom are splendid individuals — put on the ragged performance we all have witnessed, broadening the source of trustees to include maximum consumer representation will render mandatory not only preliminary education for trustees but also continuing education.

5. All levels of health care are "interdependent." Most agencies and institutions know this. The problem stems from the fact that each agency has operated and continues to operate independently. Government agencies and institutions communicate less than voluntary agencies because of the very nature of government services. Budget limitations and the variable nature of politics support this contention. In recent years government agencies, health and otherwise, have done commendable planning, but no adequate meeting of minds has existed between government and voluntary agencies.

The following is taken from the report of the National Advisory Commission:

"III. Requirements for Comprehensive Health Care Systems

"Access to comprehensive health care is a right for all. National policy recognizes this right as essential to human need, personal dignity, family security, and the socioeconomic well-being of every individual, all factors on which the strength of the Nation depends.

"Comprehensive health care is a system of services for individuals and families including four essential components: Health education, personal preventive services, diagnostic and therapeutic services, and rehabilitative and restorative services.

"Extraordinary advances in medical knowledge and subsequent technological changes require a concept of comprehensive health care with multiple systems for its organization and delivery.

"National policy commitment as well as program and financial incentives are necessary to effect the transition to community-determined comprehensive health care systems.

"*All health interests must plan and work toward the goal of comprehensive health care. The flow of funds should be administered to make a maximum contribution to the organization of comprehensive health care systems. Design of facilities must emphasize their roles as components of systems and their contribution to the end objective — health services for people.*"[2]

All of this deals largely with the interrelationship of agencies that have developed independently. Poor interrelationship, as well as the internal problems, has contributed to the cost of heath care.

Since 1960 the classic roles and relationships of trustees, administrators and physicians have become vague and overlapping. The effectiveness of these relationships has dangerously weakened. Problems have been imposed upon medical practice as the demands of institutions and programs such as Medicare and Medicaid have increased. Obviously, changing and more effective methods of patient care cannot be established without the good counsel, continued interest and attention of the physician who must direct their use in the care of patients. Expansion and change have occurred so rapidly, particularly in hospitals, that management has not been able to adjust. At the same time that these institutions are trying to contend with the collective effort that would consolidate them into systems of care, they must also be greatly concerned with improving internal operations. Under these conditions, the patient, the reason for it all, becomes vague and remote — or is even overlooked.

The answer to the question "What is to be done?" must be twofold:

(1) The concept of planning must effectively include all agencies, public or private. The need for mutual planning must be understood and supported not only by voluntary hospitals and agencies, but also by government and proprietary programs if the health of the average citizen is to be most effectively protected at the lowest cost.

A meeting of minds must be established, at least state-wide. Governor Peterson's proposed cabinet government could provide an effective means for this. Under this program, presumably state health and welfare agencies would be consolidated. With this substantial beginning representatives of properly organized voluntary and proprietary agencies should be included and fully participating in all planning and development of services.

Proper communication between agencies and institutions will not exist unless some official or quasi-official means of communication is established and enforced. Unless this problem is faced, agencies and institutions will continue in unilateral programs at the financial and physical expense of the patient.

(2) The internal organization and management of health institutions, government as well as voluntary, must be improved. Rapid technical development, rapid expansion of service volumes, rapid expansion of costs in order to keep abreast of inflationary trends, rapid turnover, the impact of federal laws and programs have all contributed to a departure from basic principles. Sound principles of organization and operation must be restored and sustained if the patient is to receive the benefits sought by The National Advisory Commission on Health Facilities.

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[2] Italics added.

CLIMATOLOGY AND MEDICINE

Article IV

Lewis B. Flinn, M.D.

The author's fourth article in the series pursues the question of the possible relationship between climatic changes and the progress of medical knowledge.

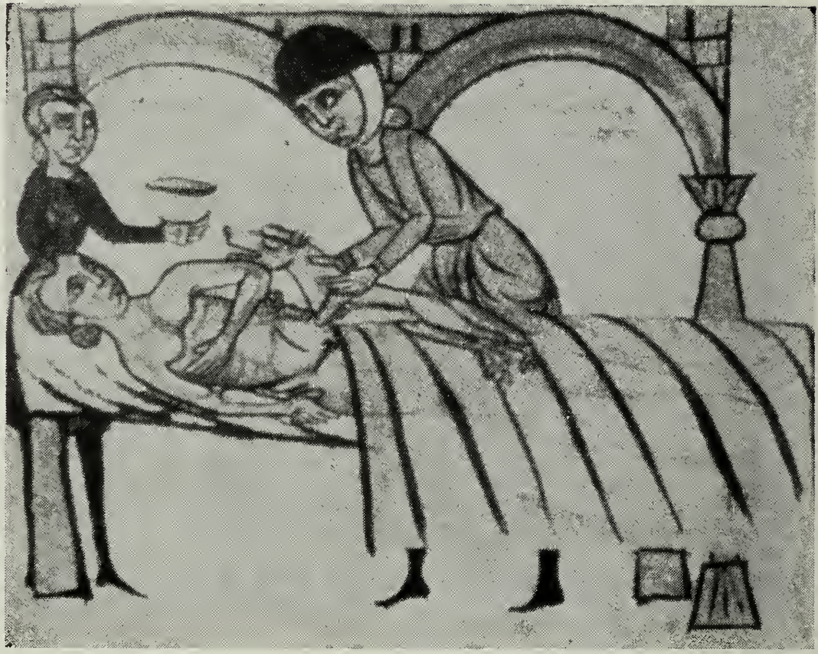

Figure 4

In the last article of this series it was noted that from 800-1000 A.D. medicine in Europe was really in the doldrums. It was the end of the Dark Ages. For the next 100 years the weather was moist, stormy and changeable. The Crusades began. Universities were established. The Salerno Medical School, the first medical center of lay medicine, was founded. Yet even here curious medical practices and modes of therapy were prescribed. For instance, Figure 4 taken from Bettemann's *A Pictorial History of Medicine*[1] depicts the treatment of prolapsed intestines by applying to the abdomen the warm entrails of a dog whose abdomen had been freshly slit.

For about 200 years, from 1100 to 1300, it was dry and hot. Cereal was growing in Iceland in the year 1000. There was wine making in Great Britain. There was no ice in Iceland in the ninth and tenth centuries, but after 1400 A.D. glaciers advanced and all such activities in these northern areas disappeared, not to return.

In 1453 the Byzantine Empire fell. The Renaissance was ushered in with the return of stormy, changeable weather. It was the time of the Ming Dynasty in China. The humanistic movement began. Akbar the Great was ruling in India about 1560; William Harvey in 1616 developed his theory of the circulation of the blood at Padua; and the Taj Mahal was built in 1630.

Dr. Flinn is Honorary Physician, Department of Medicine, Wilmington Medical Center.

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THE EFFECTIVENESS OF A PSYCHIATRIC EMERGENCY SERVICE

• Emergency service (PES) provides round-the-clock, no-waiting-list availability of psychiatric help. The analysis of ten months' activities indicates that PES has had some effect in reducing the admissions to the Delaware State Hospital and has assumed a significant role in preventive psychiatry.

Aydin Z. Bill, M.D.

A General Look At the Delaware Scene

The Mental Health Program in Delaware has been divided into four regions:

Region I (Northern New Castle County) has a population of 177,670 and contains the largest city in Delaware, Wilmington, which has a population of 85,000. The socio-economic structure is similar to other cities in the country, ie, the higher middle class living in suburbia and the lower income levels in the city. Recently, there has been civil disorder in the ghetto section of this city. There are a mental hygiene clinic and a home-care program where patients released from the State Hospital are referred and seen for follow-up. The Mental Hygiene Clinic and Home Care Program are incorporated into one building and provide out-patient care for all persons in need of such services who are residents of the respective county.

Region II (Southern New Castle County) has a population of 188,628 and contains smaller cities with populations ranging from 6,000 to 20,0000. This region has one university, and the majority of the industry is located in this area. There are low-cost housing development areas deteriorating fast. Subsequently, the higher income bracket is moving out and building new development centers. Some of the older communities resemble the structure of a big city ghetto. The population growth has been highest in this region. (Table I)

Table I

Population Growth in Four Regions

	1960 Census	1967 Census	Growth Rate
Region I	163,821	177,670	+8.5%
Region II	142,030	188,628	+32.8%
Region III	66,345	81,530	+22.9%
Region IV	73,492	78,596	+6.9%
State Total	445,688	526,424	+18.1%

The division of Region I and II in the Delaware Plan for Mental Health, based on population and expected growth, was not done on natural geographical lines. This is compounded by the fact that people live in one region and work in another. There are a mental hygiene clinic and a home-care program with a set-up similar to Region I. The only mental hospital in the state, Delaware State Hospital, is located in this region. In 1967 a community mental health center was organized for Region II with the State Hospital providing in-patient and partial hospitalization services. As part of the network of services, coordinated within the Community Mental Health Center, the first Psychiatric Emergency Service (PES) became operative as of July, 1967. The in-patient and out-patient services and day hospital were already in existence, and PES completed the last link to provide a community mental health center.

Dr. Bill is Director, Psychiatric Emergency Service, Southern New Castle County Community Mental Health Center, Department of Mental Health, Delaware State Hospital, Delaware.

Region III (Kent County) has a population of 81,530, living mostly in a rural setting. One mental hygiene clinic and a home-care program provide the out-patient care.

Region IV (Sussex County) has a population of 78,596 and represents the same characteristics as Kent County as far as population structure is concerned. The Mental Health Program is similar to that of the first three regions. Recently a Help-Line was organized in this county. It is operated 24-hours a day and is jointly covered by nurses of the Mental Hygiene Clinic and members of the Sussex County clergy. This is essentially a telephone-answering and referral system.

Delaware is unique in the sense that all four regions have similar mental health programs with only one mental hospital for inpatient services. Therefore, it is possible to keep accurate records of the hospitalization history of each patient. It is also possible to evaluate the effectiveness of a crisis intervention program in preventing hospitalization because there is only one program of this kind in the state. Any change in the admission patterns to the hospital from four regions will reflect the effectiveness of the programs.

It should be mentioned here that higher income level patients may seek hospitalization in Philadelphia or Baltimore. Bed capacity for psychiatric patients in general hospitals is very limited.

Staffing and Mode of Operation

The PES office is located on the grounds of the Delaware State Hospital and provides three main kinds of services:

1. Mobile Team — Consists of one psychiatrist, one social worker and one nurse. This team can visit the patient at home, at the place of employment, in the family physician's office, or the police station or wherever feasible. The mobile team is available five days a week, from 8:30 a.m. to 5:00 p.m.

2. Telephone Answering Service — This is available 24-hours a day, seven days a week, including holidays. The mental health assistants, who are trained to respond to the phone calls from people in distress, provide coverage of this phone service.

3. Walk-In Clinic — This is also available 24-hours a day, seven days a week. During regular working hours, Monday through Friday, members of the mobile team screen the walk-ins. After 5:00 p.m., mental health assistants interview the walk-ins, and if it is not possible for them to handle the matter, they seek the help of the physician on call at the Delaware State Hospital. If the case does not require immediate attention, the mental health assistant reports to the PES professional staff the next morning, and the team members contact the caller to evaluate the situation. If indicated, the team is prepared to visit the patient in the home.

Besides these three essential functions, PES also provides consultation services and education programs to the community[1]. There is no waiting list for any of the basic services provided by PES. Within one year's operation, all cases have been seen within a few minutes to a few hours depending on the required services. As far as the operation is concerned, we tried to avoid rigid rules and regulations as much as possible. The system has been constructed to permit flexibility so that PES can adjust itself to any new situation. This is essential in giving the optimal care to the mentally ill. In referrals, we maintain a very low barrier. Actually there are no restrictions placed on referrals, and calls are accepted from anyone involved with the patient. This proves to be very satisfactory when a referral comes from another agency since the other branches of the Department of Mental Health require more extensive background data on referrals.

When a distress call is received, it is the duty of the mental health assistant to evaluate the nature of the call and offer the appropriate assistance via the phone. The basic goal of this intake procedure is to decide on the severity of illness and the degree of urgency. If the referral appears to be urgent the mental health assistant immediately informs the psychiatrist, who decides on the exact need of the caller, and the mobile team can respond to the crisis situation immediately.

We prefer to make the initial home visit with at least two members of the service. This proves to be safer until we know the family and the problem. The follow-up visits, especially if they are for supervision of medication, can be made by the nurse alone. For the initial home visits we have adopted the technique used by the Home Treatment Service of Boston State Hospital. Once the introductions are over, the psychiatrist and the social worker invite the family and the patient to discuss the problem that led to the referral. The psychiatrist emphasizes his interest in the patient by providing out-patient treatment rather than sending him to the hospital. Our connection with the Delaware State Hospital is neither denied nor stressed. We then suggest that the social worker and the family go on to another room in order to gather more of the social history, while the psychiatrist talks in private with the patient. The psychiatrist takes medical history from the patient as an introduction to the other aspects of the anamnesis and completes the mental status examination. Afterwards, the whole family gathers together and the team discusses the next step in management. The social worker and the psychiatrist have found it advisable to have a discussion separately prior to reconvening with the family, so as to avoid a difference of opinion about the therapeutic program. For example, the social worker might have discovered that the patient had serious suicidal intent or that the family was incapable of managing the patient and could no longer tolerate the patient in the home.[2]

Home Visits

The psychiatrist participates in all initial home visits, and when it is not possible for the social worker to participate in this visit, the nurse accompanies the psychiatrist. Sometimes student nurses, chaplains, and psychiatric residents participate in the initial home visit in place of the social worker and/or the nurse. Since the family dynamics and attitudes are extremely important in a home treatment program, we insist that involved family members be present at the initial home visit. If other community agents are involved, we invite them to join us in the home of the patient during the evaluation interview. It is very interesting to note that, similar to the findings of the Home Treatment Service of Boston State Hospital, this invitation is accepted most frequently by the visiting nurse and the welfare worker, and least frequently by the clergy and family doctor.[2]

Experience has shown us that the home visits are time-saving. This is contrary to the opinion of some authorities.[3] Home visits enable the staff to gain more first-hand information about the patient and help the staff to observe and evaluate the family inter-action, way of life and values, which is very difficult to do in the office set-up. Minutes in the home of a patient can provide for an observer more pertinent and accurate information about the patient and his family than hours in the office. A family portrait in the living room may give more meaningful information by one look or by one question than any social history taken in many hours. In one home, for example, when we asked the patient when the large family portrait was taken, he could not even remember the approximate year. This forgetfulness gave the team a clue to look further into the family situation rather than at his individual illness. Furthermore, the interior decoration of a home can help to a great extent in coming up with a proper diagnosis. There seems to be a definite pattern of interior decoration in the paranoid patient as well as the manic one. This has been noted in numerous home visit contacts.

Members of the Team

The team meetings and staff conferences are informal in the sense that they are unscheduled. The members of the team meet to discuss the cases, depending on the free time available during the week days. Sometimes the conference is called in the morning, sometimes in the afternoon. Another interesting method is to hold an interview analysis in the car while returning from a home visit.

The PES is reached either directly by its own phone number or through the switchboard of the Delaware State Hospital.

Referral Sources

During the first two months of operation, PES made appointments with most of the community agencies and held meetings with their representatives to explain the purpose and the function of the emergency service. A form letter describing the services was sent from the Department of Mental Health to all licensed physicians in Delaware. A few news releases in the local papers helped the public to become aware of the availability of an emergency service. Right from the beginning, PES, an entirely new concept to the community, started to receive a high number of referrals. Throughout the year, self and family referrals maintained a high rate, nearly 42% of the total referrals. (Table II)

Table II
Referral Sources

Source of Referral	Number of Patients
Self	76
Family	69
Public Agencies (Dept. of Welfare, etc.)	96
Hospitals (DSH)	37
Local Physicians	29
Courts	12
Clergy	8
Other	18
Total	345

Public agencies such as welfare and public health nurses referred the next largest number. Surprisingly enough, the clergy, who by the nature of their work may deal with many people in need of counseling and psychiatric support, referred the lowest number of cases.

Emergency Treatment and Crisis Intervention

In the beginning of the program we faced the question of what constitutes a psychiatric emergency. It seemed clear that psychiatric emergencies could not be limited to those people who might be dangerous to themselves or others. Therefore we decided to define a psychiatric emergency in the language by Ungerleider: "All patients whose conditions warrant prompt psychiatric attention for whatever reasons are designated emergencies."[4]

Since the mid-1940's concern about mental health has generally become widespread, and interest in psychotherapy has grown at a rapid rate, but the main focus was on long-term psychotherapy. Crisis intervention and emergency treatment remained an unmentioned area in psychiatric treatment methods. Today many still believe that good short-term therapy is only a poor substitute for good long-term therapy. Dubos asked, "Is it not a delusion to proclaim the present state of health as the best in the history of the world at a time when increasing numbers of persons in our society depend on drugs and doctors for meeting the ordinary problems of everyday life?"[5]

Within the last decade, the need for short-term intensive psychiatric care was being felt more and more. Until very recently only one or two psychiatric therapeutic choices were available: long-term psychotherapy or hospitalization. Many authorities felt that there were enormous numbers of patients who needed neither but could benefit from brief, flexible treatment[6]. According to Coleman, many problems are amenable to brief psychotherapeutic intervention long before they are deeply incorporated into the personality.[6] It is now generally believed that availability of around-the-clock care without appointments allows the psychiatrist, the patients, and their families to feel more comfortable about the crisis intervention and treatment.

It is necessary to define problems in crisis intervention, differently from those in long-term psychotherapy. Such an interview and therapeutic approach also leads to measuring change differently — hour by hour or day by day. This approach is not needed by the long-term therapist, who is not pressed for time, and who is committed primarily to uncovering and interpreting the past behavior, and then applying these insights to current behavior.[7]

PES provides short-term intensive treatment. The patients are being seen frequently during the period of crisis, usually twice a week. If the case needs more frequent interviews these are provided. Some cases have been seen everyday, some twice a day. In some cases the team spends hours in the home of a patient, and in a particular case this included preparing lunch for a severely depressed patient. This effort seemed worthwhile, because the same individual, who at that time was considered suicidal, went on a trip with her husband a couple of days later, and improved satisfactorily.

The initial interview of the patient and the family is mainly to evaluate the condition of the patient and to make a decision regarding the treatment program. The initial interview lasts about one hour, thirty minutes with the patient and thirty minutes with the family. A patient who is considered dangerous to himself and/or to others is recommended for hospitalization. Of the 345 patients evaluated during the first year of operation, 73 were found to be too sick for out-patient treatment and hospitalization was recommended; 41 patients were referred for either consultation or evaluation by another agency. These 114 patients were seen only once by our team. The remaining patients were accepted for therapy and were seen during the period of crisis which varied from two to eighteen interviews. (Table III)

TABLE III
NUMBER OF INTERVIEWS

Number of Interviews	Number of Patients
1	114
2	78
3	49
4	21
5	50
6	11
7	11
8	6
9	7
10	3
12	3
13	2
18	1
Total	326

In our Emergency Service, we relied heavily on neuroleptic medication. (Table IV)

TABLE IV
DRUGS USED

Drug	Daily Dosage (mg.)	No. of Patients
Librium	20-75	29
Mellaril	10-300	19
Thorazine	50-400	18
Valium	5-15	7
Stelazine	5-15	14
Tofranil	25-100	4
Pertofrane	25-75	3
Elavil	25-75	6
Triavil (2-25)	T.I.D.	4
Triavil (4-10)	B.I.D.	1
Prolixin	7.5 mg	1
Total		97

Combination Drugs (Two)	No. of Patients
Tofranil-Stelazine	26
Tofranil-Librium	24
Thorazine-Stelazine	11
Elavil-Stelazine	6
Tofranil-Thorazine	4
Mellaril-Stelazine	4
Tofranil-Valium	4
Thorazine-Mellaril	4
Tofranil-Mellaril	3
Librium-Stelazine	4
Pertofrane-Compazine	2
Stelazine-Aventil	1
Total	94

Combination Drugs (Three)	No. of Patients
Mellaril-Elavil-Librium	5
Tofranil-Mellaril-Librium	3
Tofranil-Thorazine-Stelazine	2
Total	10
Total Patients on Drugs	201

Almost all cases with a diagnosis of psychotic reaction were placed on neuroleptic drugs. Relatives of the patients were made part of the therapeutic program, and different aspects of the program were discussed with them. They were informed about mental illness, and a frank explanation was given. The drugs have been especially useful in a family crisis where one partner has paranoid ideations or delusions. When the delusions were suppressed by drugs, the crisis seemed to be over.

In most psychoneurotic patients, emergency psychotherapy techniques were used; if medication was also indicated, this consisted mostly of non-phenothiazine type drugs, such as chlordiazepoxide or diazepam. We feel it is highly important and essential for a psychiatrist to see himself as a psychotherapist when he is facing a crisis. If he fails to take this attitude and concentrates rather on a decision to hospitalize or not to hospitalize, he will not be able to go beyond the crisis surrounding the patient. In emergency intervention, the therapist should evaluate the patient's ego assets in dealing with the emerging ideas and wishes, and the effect which accompanies them. By talking about them he will be able to help the patient to deal with the threatening ideas and thereby diminish the patient's feeling of temporary loss of ability to take care of himself and his impulses.[8]

A crisis is manifested in many ways, most often by varying degrees of anger, hostility or severe anxiety accompanied by depression, and the person is usually past the point of his particular adaptive capacity to the given situation. In any emergency situation it is necessary to determine, as nearly as possible, what the patient is accomplishing or attempting to accomplish by his behavior. A severely-depressed patient who was threatening suicide was alone in her home at the time she called us. She insisted that we not contact her husband who was at work, because of the fact that "he would not understand" her feelings. When the team called her husband, regardless of the patient's insistence, she calmed down as soon as he entered the home, and the symptoms of depression seemed to be relieved, at least temporarily. Later on we found out that she was not able to communicate directly with her husband and hoped that a crisis would "open his eyes." This is in one sense a reply to Dubos: why people need and rely on drugs and doctors more than they ever did in the history of civilization. Although mechanical ways of communication are better than ever, interpersonal communication is worse than ever. The reasons for this are beyond the scope of this paper.

Disposition and Termination

It is difficult to decide the nature and the severity of the illness just by the referral intake. Families tend to exaggerate the condition. However, it may be dangerous to stick to this opinion by itself as it may lead to underestimating the condition of the patient at the time of referral. Since the PES team is especially a short-term treatment program, we keep in mind the possibilities of finding another community agency to refer the patient to for follow-up care. We usually like to refer the patient back to the community agency which established the first contact. The nature of our referral depends mostly on the severity of the patient's illness. If hospitalization is indicated, PES advises the family regarding the procedures. If long-range medication or psychotherapy is indicated, the case is referred to the Mental Hygiene Clinic, which operates as the out-patient unit of the Southern New Castle County Community Mental Health Center. (Table V)

Table V
Dispositions

Disposition	Number of Patients
Hospitalization Recommended	73
Follow-Up Therapy in Out-Patient Units	169
Other Medical Service (Local Physicians)	19
Non-Medical Service	27
No Disposition Reported	38
Total	326

Types of Patients in Whom Emergency Therapy Gives Better Results

PES provides services to a great variety of patients of all ages and diagnoses. (Table VI) The great majority of patients, ie, over 60%, were between the ages of 20 and 39, and the diagnostic categories remained high in psychotic and neurotic categories. The following groups of patients responded to emergency therapy satisfactorily:

1. Acute Psychotic States — Most of these patients were schizophrenics with noisy, overactive, assaultative or destructive behavior and with delusional thoughts. A smaller number of patients in this group were manics, and only one was suffering from organic deterior-

TABLE VI

DEPARTMENT OF MENTAL HEALTH
EMERGENCY SERVICES
ADMISSIONS SEPTEMBER, 1967 THRU JUNE 30, 1968
DISTRIBUTED BY AGE AND DIAGNOSIS

MENTAL DISORDER	UNDER 15		15 - 24		25 - 34		35 - 44		45 - 54		55 - 64		65 & OVER		TOTALS		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	T
ACUTE BRAIN SYNDROMES																	
TOTAL ACUTE BRAIN SYNDROMES							1			1					1	1	2
CHRONIC BRAIN SYNDROMES																	
TOTAL CHRONIC BRAIN SYNDROMES			1		1	2	1			2	1	2	1	2	5	8	13
PSYCHOTIC DISORDERS																	
Involutional								1		5		4	1		0	11	11
Affective Reaction					1	2	2	3		3	1	2			4	10	14
Schizophrenic Reaction			3	5	6	14	14	19	3	5	1	2			27	45	72
Paranoid Reaction										1					0	1	1
All other Psych. Dis.									1						1	0	1
TOTAL PSYCHOTIC DISORDERS			3	5	7	16	16	23	4	14	2	8	1		32	67	99
PSYCHONEUROTIC DISORDERS			7	7	7	22		18	1	3		1			15	51	66
PERSONALITY DISORDERS																	
Personality Pattern			1		2	4	2	1		1					5	6	11
Personality Trait			9	5	8	4	4	4		1					21	14	35
Alcoholism					1		5		1	1					7	1	8
Drug Addiction			1							1					1	1	2
All Other Pers. Dis.			2		2		1								5	0	5
TOTAL PERSONALITY DISORDERS			13	5	3	8	12	5	1	4					39	22	61
TRANSIENT SITUATIONAL PERSONALITY DISORDERS	4	1	4	3		2								1	8	7	15
MENTAL DEFICIENCY							1			1					1	1	2
UNDIAGNOSED		1	6	4	2	3	2	2	1	4		2			11	16	27
GRAND TOTAL	4	2	34	24	30	53	33	48	7	29	3	13	1	4	112	173	285

ation. In these groups of patients, environmental factors, triggered to acute manifestation of the illness, seemed to be common. Environmental factors include marital difficulties such as separation, divorce, or excessive use of alcohol, being laid off or fired from a job resulting in financial difficulties, and inability to keep up with outstanding bills. Such patients respond to phenothiazines and short-term psychotherapy dramatically. However, some fail to keep their follow-up appointments and discontinue their medication as soon as the acute phase is over. Severe relapses are regularly seen in those who fail to take their neuroleptic medication regularly.[9]

2. Chronic Psychotic States — These patients represent a group of schizophrenics with a history of multiple hospitalization and are being followed in home-care programs after their release from the hospital. During their follow-up programs they may be discharged as improved, or be referred to the care of their family doctors. In either case, the patient usually ends up by stopping his medication and a relapse follows. If the situation can be caught in time, re-institution of the medication can attain a quick remission, and they can again be referred to a home care program for supervision of the drugs. These patients are usually those in the two-interview category.

3. Acute Depressions — A great majority of our patients with a diagnosis of psychoneurosis were depressed as a reaction to a new stress in the environment. Following immediate intervention, which meant including the family in the therapy approach, the patient's clinical syndromes seemed to disappear rather rapidly; however, without follow-up programs they tend to recur. Non-phenothiazine drugs seem to be most helpful for this group of patients. For this group we would like to distinguish the pharmacologic indication and psychological effect of the drugs. We observed that some patients were responding dramatically to the first few doses of an anti-depressant when pharmacologically-induced remission is said to take at least three days in full doses. In view of this fact, anti-depressants are being used so that if the psychological effect fails, the pharmaceutical effect may pick up in due time.

The age groups of patients who came to PES is shown in Table VI. For the sake of brevity, the ages of patients are given in ten-year groups. A detailed analysis shows that the crisis occurs for men mostly during the ages of 20 to 24, and then generally declines, reaching another peak between the ages of 35 and 39. For women, a peak of crisis is reached between the ages of 30 and 34 and then gradually declines. It is also interesting to note that 69% of all patients seen by the PES team had never been subjected to psychiatric care either on an out-patient or an in-patient basis, which also indicates that such a crisis intervention service can play a great role in preventative aspects of mental health problems.

Admissions to Delaware State Hospital

As mentioned earlier in this paper, the Mental Health Program in Delaware has been divided into four areas, and the State Hospital

TABLE VII

ADMISSIONS TO DELAWARE STATE HOSPITAL
FROM FOUR REGIONS

	Region I	Region II	Region III	Region IV	Total
September 1966 - June 1967	478	322	127	141	1068
September 1967 - June 1968	462	300	140	150	1053

Distribution of Patients to Areas Served by PES

					Non-Resident	Total
1968	112	218	4	2	9	345

is the only mental hospital in the state and accepts patients from all four areas. The PES serves primarily Region II but will accept patients from other areas for consultation and evaluation purposes. Since there is only one Emergency Service in Delaware and Region I and Region II are not separated geographically, 30% of our patients were accepted for treatment and evaluation from Region I. Since the PES has been in operation, there has been a noticeable change in the admissions to the Delaware State Hospital. (Table VII)

The data would seem to indicate that the PES has had some effect in reducing the admissions to the Delaware State Hospital. Admissions from Regions III and IV increased compared to the admissions of last year, but Regions I and II showed a decrease. This decrease is even more prominent in Region II where PES treated the larger number of patients. Furthermore the population growth has been the highest in Region II (refer to Table I). The trend of increased admissions to Delaware State Hospital from one year to the next seemed to reverse after PES became operative. The data also indicated that PES, since its inception, has succeeded in finding additional psychiatric cases. This fact is substantiated in that 69% of the total admissions to the PES had not been previously receiving service from either in-patient or out-patient psychiatric facilities.

Summary

The first Psychiatric Emergency Service was organized to serve primarily Region II, and took a small number of patients from the nearby Region I. During the first ten months of operation the Emergency Service evaluated and treated 345 patients with no waiting list. Statistics from the last six years show a constant increase in admissions to the Delaware State Hospital. Since the opening of PES there has been a definite decrease in admissions to the Delaware State Hospital from Regions I and II while the other two areas have continued to show an increase in the number of admissions. The home visits helped the staff to evaluate and understand the patient's problems more quickly than they could have in the conventional clinic visit.

ACKNOWLEDGMENT

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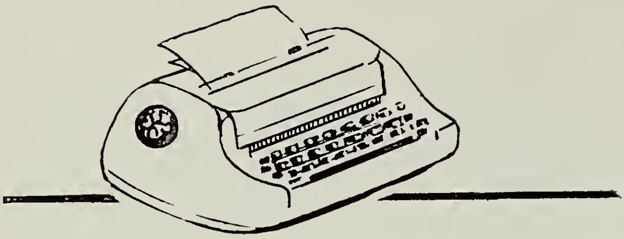
"EVIL ADVENTURERS LURK . . ."

No civilized man can know of the Nazis and not experience a moment of fear. The madness of the forties should never escape the recollection of Everyman. National insanity lurks in many disguises; no minority group is beyond jeopardy. There are many examples in the convolutions of history of incalculable, fortuitous combinations of men and events setting strange wheels into motion. Rational men must stand alert at every moment to fight the irrationalities of prejudice and hatred; evil adventurers never lurk far from the vortex of political action. Hitler was not an accident of nature. While Everyman slumbered — warm, fat, complacent — a vicious caprice of fate pulled the handle. Sinister cylinders clicked into place, and up jumped the devil in jackboots.

Col. Robert Moser
Chief, Department of Medicine
Walter Reed Hospital



Special Reports

THE TRIANGLE: The University of Delaware, Jefferson Medical College and the Wilmington Medical Center

A report of the panel discussion held on May 13, 1969 at a general staff meeting of the Wilmington Medical Center. The panel was moderated by A. J. Morris, M.D., and included Drs. Norman L. Cannon, G. Barrett Heckler, and Harold S. Rafal, and Mr. Charles L. Reese, Jr., representing the Medical Center; Drs. William Kellow, Dean, and John H. Killough, Associate Dean, Jefferson Medical College; and Dr. George H. Worrilow, Vice President for University Relations, University of Delaware.

Dr. Morris began the panel discussion by reviewing the conclusions of the Penrod Report which was obtained by the Academy of Medicine under the aegis of the University of Delaware and the Delaware Medical Society. The Penrod Report, made five years ago, suggested that at that time a medical school was not advisable for Delaware and instead closer ties might be developed with a medical school in Philadelphia but perhaps in 10 to 15 years it would be appropriate to develop a medical school in Delaware. Since then the Wilmington Medical Center (WMC) has achieved some affiliation with the Jefferson Medical College and with the University of Delaware. The purpose of this panel was to present to the medical staff and the physicians of Delaware a report of achievement to date in the direction of affiliation between all three institutions and what will hopefully be the future of such an association.

Dr. George Worrilow presented the role of the University of Delaware in this tri-partite affiliation. The first purpose of affiliation is to provide more physicians for the State of Delaware, particularly in the outlying parts of the state. He stated his belief that Delaware cannot provide a medical school of its own but could well benefit from an affiliation in which pre-med students might take part in the program of affiliation with Jefferson, a program which would hopefully return physicians to the State of Delaware. The financial responsibility for the development of such a program should be shared by the state legislature. Discussion has taken place towards the formation of an "institute" to act as a vehicle in activating such a plan at the state level. This "institute" would consist of a Board of Governors with a representation of appointees by the Governor and by the University of Delaware itself. The University would benefit in three ways by such an affiliation: in its pre-med program, in its continuing education program, and in its research program. He felt that this merger was no longer a consideration of convenience but of necessity.

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Mr. Reese's presentation was of considerable scope. He stated that the decision of the Joint Hospital Management Committee five years ago to merge the three community hospitals into the WMC had already borne the fruit of improved teaching facilities for the Center. A tri-partite affiliation with the University of Delaware and the Jefferson Medical College would serve to produce a better house staff, better research facilities, and post-graduate continuing education program for physicians throughout the state. Affiliating with a medical school could provide fuller participation in the Regional Medical Program which would provide greater support from federal funding. There will be many benefits from an affiliation but also several hurdles on the way.

Mr. Reese feels that one of the prerequisites will be the development of a first-class teaching staff, hopefully most of whom would come from local physicians on the medical staff. Secondly, funding of such a program may cause some problems, particularly since the WMC is at present spending more than one million dollars for educational programs within the Center and there is an increasing charity deficit. An affiliation with a medical school and the University of Delaware may double or triple the financing problem since there would have to be more full-time physicians working in departments and more part-time people working with them. There would also have to be a full-time director of research to help coordinate research programs with the medical school and with the University of Delaware. With respect to full-time and part-time people in departments, the Board of Trustees of the WMC has no intention of looking for outside people without the full endorsement of the department involved.

The over-all goal, Mr. Reese explained, for the tri-partite affiliation would be for premedical students from the University of Delaware to go to the Jefferson Medical College for the first two years of their basic sciences and then come to the WMC for the clinical years. In spite of the difficulties involved in the establishment of such an affiliation the Board intends to press forward with the program.

Dr. Kellow spoke quite directly to the subject of what the Jefferson Medical College needed from the WMC, and what the WMC might expect from affiliation with Jefferson Medical College. The medical schools throughout the country are charged with the responsibility of producing physicians to take care of people in this country, and medical schools throughout the country are spreading teaching facilities to other community hospitals. The hospital's goal is to provide treatment for patients here and now, whereas the medical school goals are concerned with discovery of new knowledge and treatment for tomorrow so that in that sense there is a difference.

The Dean emphasized that how the medical staff is structured is the business of the medical staff and not of the medical school. However, how the students are taught at the WMC will be the responsibility of Jefferson Medical College. The key to success of the program lies with the individual members of the WMC staff who will be doing the teaching.

He stated that the climate of opinion has changed with regard to hospitals affiliating with medical schools. Whereas in the past hospitals shied away from such associations, now many hospitals are desirous of affiliating with medical schools for one reason or another, and Jefferson Medical College has had to turn down many such requests. Jefferson is interested in the WMC because of a rather unique set of circumstances, namely, that the affiliation offers an opportunity to associate with the WMC, which provides medical treatment for a whole state and also for all types of people. In addition, it provides an opportunity to affiliate with a neighboring state which does not have a medical school. In other words, it provides an opportunity for a "whole package deal." Finally, it creates an association with a large and distinguished university.

With regard to the benefits available for the WMC in this affiliation, the most important result of such affiliations between hospitals and medical schools is an investment in the future, ie, better physicians because the inquisitiveness of medical students provides a continuous incentive towards this end.

As to the prerequisites of Jefferson concerning the WMC staff, Dean Kellow stated that the medical school would ask primarily for time from the physicians, time to prepare for the students and time to spend with them. All major services would need to have a full-time general manager who would be a coordinator or administrator for the department. He would provide a continuity of academic teaching for the medical students between Jefferson and the Medical Center. Such an affiliation would be most rewarding both for Jefferson and for the physicians of the WMC.

The following points were made during the question and answer period:

The earliest time for starting the program of affiliation between students from the University of Delaware and the Jefferson Medical College would be September 1970, which would mean medical students returning to the WMC in 1972. The first class would consist of 20 students from Delaware and perhaps some students from other states. In other words, by the fourth year of the program, there would be 40 or more junior and senior medical students at the WMC.

The staff of the WMC may remain an open staff; Jefferson considers such matters to be the business of the WMC.

Beds would not need to be restricted to physicians with university affiliation. However, when any physician had a patient of exceptional interest, he might be requested to have the medical students and attendings see his patient with him.

With regard to rotation of residents from Jefferson to the WMC, this would be under the control of department chairmen of Jefferson Medical College. There may be some variation of interest on the part of different department chairmen.

The teaching program between the WMC and the Jefferson Medical College would be coordinated by a coordinating group with representation from both institutions.

Recommendations for who would be involved in teaching from the WMC would come from the chief of the department and the Medical Director of the hospital, and then be reviewed by the Jefferson Medical College.

George L. Henderson, M.D., *Secretary*
Medical-Dental Staff

FISCAL RESPONSIBILITY FOR SURGEONS, 1969-1970

Pierre L. LeRoy, M.D.

The Delaware Chapter of the American College of Surgeons held a recent meeting at which a panel discussion on *Fiscal Responsibility, 1969-1970* was presented.

The panel was the second in a series devoted to the physician's responsibility in relation to fiscal matters. Dr. Daniel J. Preston, a Fellow of the College and a past president of the Medical Society of Delaware was moderator.

Dr. Conley L. Edwards discussed the history and development of the prevailing fee program, beginning with the organization of Blue Cross in the 1930's through the economic developments, both local and national, of the 1950's and 1960's that brought about the prevailing fee program of compensation of physicians by insurance carriers.

Dr. James M. Chase, Jr., discussed *Growth of the Prevailing Program in Correlation with Other Programs, Such as Medicaid and Medicare*. He emphasized the cooperative effort of the private voluntary health insurance carriers and Blue Cross-Blue Shield organizations. The fine organizational work of the Medical Society of Delaware was stressed. He pointed out, "There is no reason, however, to be complacent about these current programs even though they are, at present, working well."

Dr. Howard Wilk's topic was *Performance of the Prevailing Fee Program and Current Hospital Costs of the Hospital-Based Practice.* Among other things, Dr. Wilk pointed out that of more than 18,000 cases handled in the 100 percent programs, only 142 or .002 percent had been referred through the Medical Review Committee set up to resolve disputes arising out of the prevailing fee program.

Dr. Joseph Belgrade's *Projection of Fiscal Responsibility, 1969-1970* emphasized a new plan, still unnamed, stressing participation by the individual policyholder and offering 80% coverage provided by the insurance carrier. As far as doctors are concerned, this new program would pay 80% of the usual and customary fee, and the prevailing fee profile already in existence would serve these new programs.

Dr. John M. Levinson, discussing *Regional Economic Guides in Connection with the Fiscal Responsibility of 1969-1970*, tied the rising cost of medical service to the costs of all services, which are rising throughout the country. He pointed out, among other things, that the average physician in 1968 needed to earn

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Editorials

COMMENTS ON "TRIANGLE" — WILMINGTON MEDICAL CENTER - JEFFERSON MEDICAL COLLEGE - UNIVERSITY OF DELAWARE

During the recent staff meeting which dissected the proposed triangular affiliation between the Wilmington Medical Center, Jefferson Medical College, and the University of Delaware, I was uncharacteristically silent. The disbelieving editors of this journal saw fit to give me a second chance, which I accept as an opportunity to distill and dilate.

At this historic crossroads of time, a distinguished medical college needs a university base, a sovereign state needs a medical college, and the eighth largest medical complex in the country needs a major teaching affiliation. The triangle is, therefore, mandatory. Social, economic, educational, and political fact make it inevitable. Responsible members of the three involved institutions recognize the problems of the affiliation as enormous and possibly, in their active professional lifetimes, insuperable. But there is nothing to do but begin the labor.

Of those involved, the physicians who comprise the staff of the Wilmington Medical Center feel most insecure and threatened. In the past, their prime concern has been medical service to the community with education a spin-off of that service. Prominence has been the reward of excellence and/or diligence. Tenure is non-existent as a formalized system.

On the other hand, the other two institutions have education as their primary thrust, with community service a spin-off of the educational activities. Faculty tenure is systematized and — at the university as at all universities — inviolable.

Since the primary concern of the triangle is projected to be education, it would, therefore, appear to be a foregone conclusion that when changes are made, the Wilmington Medical Center staff will have to make them. Already some distant rumbles and "non-negotiable" dictates have been rumored.

However, these are changing times. Whereas most of the current contumely heaped upon the medical profession is directed at the practicing physician, already the focus is shifting to the medical educational institutions which imperiously established the patterns of education which produces the practicing physician; already student revolt is beginning in the medical colleges, and the usual cry of "irrelevant" is being heard — and not without justification. But these protests are gentle murmurs compared to the cacophony of despairing protests arising from the American public itself. Transient awe at the medical miracle of the cardiac transplantation is soon forgotten when no doctor is available when chest pain occurs and goes down the left arm.

In this evolving triangle, the Wilmington Medical Center staff has a rare opportunity to exert influence to produce a better amalgam of service and education than has heretofore been conceived. There is much we can contribute with our expertise in community health care. The Wilmington Medical Center has 80 percent of the acute hospital beds in New Castle County. It cannot subvert service for education. Patients present themselves at hospitals reluctantly to be cured, not as cheerful volunteers to provide "teaching material". So often people need solace rather than science. With access to medical care in their neighborhoods drying up, they turn in desperation to the emergency room. Here, if they are "lucky" enough to be sick enough, they will get excellent science; but if they are "not so lucky," they will rarely, if ever, get solace. Too often they get neither when they need both.

It will be a futile and foredoomed labor to create a modern medical complex even of the highest caliber if we do not concomitantly

Continued on page 259

Letters to the Editor

To the Editor:

The Delaware Heart Association has awarded a grant to the Infectious Disease Research Laboratory of the Wilmington Medical Center to study the posssible role of the L-form in persistence of infection due to Group A beta streptococcus. This study will be carried out in close cooperation with the Streptococcal Fluorescent Antibody Laboratory also located in the Infectious Disease Research Laboratory. We are inviting any interested physicians to participate in this study in hopes that we will have a large enough number of patients in the next calendar year to make this a worthwhile study.

Physicians who indicate their willingness to participate in this study will be given special L-form transport media which can be stored at normal refrigeration temperatures. A routine FA swab is taken at the beginning of the treatment period, and patients who have positive cultures are treated for ten days with penicillin or whatever other antibiotic the private physician selects. On the tenth day of therapy, a repeat FA culture is taken as well as an L-form culture. This latter culture requires swabbing the throat with a cotton swab, inserting the swab in the agar of the L-form media tube and leaving the swab in place, replacing the cap of the tube and returning this tube to the Fluorescent Antibody Laboratory with the FA swab. This L-form transport media should be kept at room temperature in contradistinction to the FA swab, which should be kept at refrigerator temperature after innoculation.

In the laboratory, we will attempt to isolate the Group A beta streptococcus from the L-form transport media as well as from the routine culture. Since typing of the strains of Group A beta streptococcus is obviously necessary to the study, we must be informed as to which clinicians are willing to cooperate in the study so that we may save all initial isolates from positive cultures on your patients for subsequent typing.

We will, of course, want clinical information on any patient from whom we are successful in isolating an L-form of beta streptococcus.

Thank you in advance for your cooperation.

William J. Holloway, M.D.
Director, Infectious Disease
Research Laboratory

* * *

To the Editor:

The Delaware Department of Mental Health often has vacancies for both general practitioners and psychiatrists at various levels throughout the Department. The following is a listing of some of the positions now available:

Delaware State Hospital
- Supervising Physician (General Practitioner)
- Superintendent (Board Certified Psychiatrist)
- Staff Psychiatrist

Governor Bacon Health Center
- Superintendent (Board Certified Psychiatrist)
- Supervising Psychiatrist

Wilmington Mental Hygiene Clinic
- Staff Psychiatrist

Fernhook Mental Hygiene Clinic
- Staff Psychiatrist

We will be happy to supply additional information regarding these vacancies.

William A. Degnan
Personnel Director,
Delaware Department of
Mental Health

* * *

To the Editor:

In my many years of medical experience I have never seen nor heard of a bullet through the heart as a means of restraining the agitated psychiatric patient.

Possibly, as in Wyatt Earp's now famous town, all shootin' irons should be checked at the desk before anyone is allowed into the Emergency Room.

Carl I. Glassman, M.D.

President's Page

POLICY REGARDING RISING COSTS OF MEDICAID PROGRAM

The Council of the Medical Society of Delaware at its July 31st meeting passed a resolution recommending to all physicians that they hold the line on fee increases for all patients under Medicaid (Title XIX) at least until January 1, 1970.

To give background for our decision I would like to quote the following excerpts from a letter I received from the Under Secretary of Health, Education, and Welfare, John G. Veneman:

"To constrain the rising costs of the Medicaid program, the Department of Health, Education, and Welfare has published an interim policy regarding payments to physicians, dentists, and other individual practitioners rendered under Title XIX. The policy was based on recommendations of a task force selected by Secretary Finch and composed of knowledgeable people in the health care community.

"Among criteria developed for the policy are 1) that it should cause the least administrative disruption posible in the Title XIX States; 2) that it should encourage participation of practitioners in the program; and 3) that it should enable States and the Federal Government to predict costs.

"The regulation published July 1 provides that fee payments in effect on January 1, 1969, become the basis for reimbursement. The payments then in effect, whether on a usual and customary basis, a fixed fee schedule basis, or some other basis, may be continued if they do not exceed the payments under the Medicare program.

"From now until July 1, 1970, those States in which payments were less than the 75th percentile of customary charges in January 1969 may, with the approval of the Secretary of HEW, increase payments to physicians up to the 75th percentile of customary charges. States in which payments were above the Medicare level must reduce payments to that level. Payment at the 75th percentile means that 75 per cent of the charges in a given geographical area for a given service would be reimbursed in full, if the charge did not exceed the physician's customary charge. Charges, as used here, include all customary charges a physician makes for services, including those charges reimbursed by Title XVIII and third party carriers.

"After July 1, 1970, States' requests to increase fees paid to physicians will be approved if two conditions are met: if a State wants to increase fees above the base of the January 1969 75th percentile of customary charges, the percentage increase above that base may not exceed the percentage increase in the all-services component of the Consumer Price Index (adjusted to exclude the medical component) or the increase in an alternate index designated by the Secretary. The State must also have established effective utilization review and quality control systems in cooperation with professional groups."

I feel the members of the Medical Society of Delaware will do their part in helping to implement this policy.

Charles M. Moyer

Delaware Academy of General Practice

Q & A ON NEW BOARD FROM RECENT STATE OFFICERS' CONFERENCE

Dr. William R. Willard, chairman of the AMA's Council on Medical Education, and Dr. Maynard I. Shapiro, AAGP president, were members of a question and answer panel following Dr. Willard's talk on the new certifying board in family practice at the State Officers' Conference, April 20, in Kansas City.

The following questions answered by Dr. Shapiro reflect "grass roots" concern about the new specialty and related matters.

Q. If the government becomes more interested in supporting delivery of health care than in scientific research — will this affect medical school programs and how?

A. The effect will be marked. It is hoped that the rate of programs through research is maintained but not at the expense of devising a true system for the delivery of health care to the public. This has been the failing up to now, but there is no reason why both cannot be established simultaneously. In other words — research must continue, but "humanized" medicine must flourish at the same time. Medical schools are responding to this need. Hopefully, the government will respond also through proper funding.

Q. Would you comment on the "peer group" concept which has been proposed for the first exam which will be given by the Board?

A. "Peer groups," or as they have been labeled, "elite groups," constitute an accepted procedure in examination methods to establish a curve. Many methods are used. It is possible to take a limited sample from random selection for "peer" or establish criteria in order to select "elite." These criteria might include academic appointment, activity in other educational or civic responsibilities, etc. These are not necessarily used to establish the "pass grade" but are useful in making the curve.

Q. Does the Academy plan to sponsor or encourage courses to help the physician prepare to take these examinations?

Is the AAGP going to publish some guide for the preparation for the coming Board examination?

A. Questions regarding refreshers or guides to study are referred to the Commission on Education — as though they were requests.

Q. How can the Family Physician actually become the playing director of the medical team?

A. As correlator of all the health needs of an individual/family — in the context of community/environment with all the ramifications, he would naturally fall into the role and would be unchallenged.

Q. How can an Academy member who has been in practice three or four years be eligible to take Board Exams? Must he wait until six years of Academy membership elapse to be eligible?

A. Six years of Academy membership are not required. As a practice-eligible candidate, six years of practice during which time 300 hours of acceptable postgraduate education have been completed are required under present regulations.

(Additional questions and answers will appear in the September issue.)

In Brief

Speakers on 'Ask the Doctor"

Speakers for September, 1969 on the Tuesday radio program, (11:05 a.m. WDEL) produced by the Medical Society of Delaware are: September 2, Henry Cowell, M.D., *Children's Orthopedics;* September 9, Joyce Pearson, M.D., *Clinic on Alcoholism;* September 16, Jack C. Sallee, M.D., *Allergy;* September 23, Carlo A. Cuccia, M.D., *Radiation Therapy;* September 30, John Gehret, M.D., *The Pill.*

In the News

Dr. Frank T. O'Brien has been appointed to the Water and Air Resources Commission by Governor Russell W. Peterson.

For Sale

Leonard S. Girsh, M.D., is moving to another office and must sell a flouroscope in excellent condition, including accessories. If interested, please call Dr. Girsh at CA4-2223 in Philadelphia.

Experimental Method of Medicare Payments

Connecticut hospitals will soon begin an experiment to test a new method of payment with built-in incentives for efficiency and economy. Under a contract between the Social Security Administration and the Connecticut Hospital Association, 18 Connecticut hospitals will be paid for services furnished Medicare beneficiaries under the new incentive system over a 3-year period beginning on October 1 and for services furnished members of the Connecticut Blue Cross Plan, under a separate contract.

The Connecticut experiment and others now being developed, are intended to find ways to get more value for the dollar spent on health care — to provide incentives to efficiency and economy and at the same time maintain a high level of quality which will benefit the entire health care system, private, as well as governmental.

In the Connecticut plan, each hospital sets up target budgets for the departments involved. These are those over which the hospital has the greatest control and which account for about 60 percent of a hospital's costs — room and board, laundry, housekeeping, medical records, etc. Four departments in each hospital will be involved in the experiment during the first year, and 9 departments in each of the following 2 years. Hospitals whose costs are under the target budget will receive the budgeted amount. Those on target or above will receive the standard Medicare reimbursement, ie, their actual costs. A hospital which is able to operate a department at 10 percent or more below the average costs of its peer hospitals will receive a reward up to 2 percent of the department's actual costs.

The effect of the experiment on costs and quality of care will be evaluated by the Yale University Department of Epidemiology and Public Health.

Release, HEW, Social Security Administration

Early Detection of Lung Cancer

A major project to develop improved methods of early detection of lung cancer will be conducted by investigators at the Johns Hopkins University working under a NIH contract administered by the National Cancer Institute.

New methods of discovering lung cancer during its early stages are urgently needed. A major goal of the project at Johns Hopkins is the development of improved methods of detecting cancer cells present in sputum specimens. This technique offers the best potential for the discovery of very early lung cancers, and could be used for the mass screening of high-risk individuals. Methods and instruments for collecting, processing, and examining sputum specimens will be developed and evaluated.

A second area of concern is the need for improved techniques to pinpoint the exact source of malignant cells once they have been detected in the sputum. Project scientists plan to develop a new, flexible bronchoscope that can extend into now-inaccessible areas of the lung to locate small tumors. Special equipment to use with the improved bronchoscope to obtain cell specimens from suspicious areas will also be developed. The project will continue for an estimated 5-10 years.

Blood Donors Until 66

Americans in good health can be blood donors now until their 66th birthday instead of the 60th or 61st as in the past.

"This extension of the eligible age limit for blood donors is in recognition of two facts," explained Dr. Frank Coleman of Tampa, Florida, President of the Association. "First, that the need for blood is constantly increasing at a rate of about 12 per cent annually. Second, that, thanks to better medical care, better nutrition and other factors, Americans are living longer and also keeping their health and vigor longer than in the past." Donors 66 years of age or over, under the new American Association of Blood Banks and American Red Cross policies, may continue to give blood if they obtain the written consent of their personal physician.

CLINICAL NOTICES AND MEETINGS

Conception Control

A seminar for nurses and other professionals on Conception Control will be held at New York University Medical Center, September 17-19, 1969. For further information write: NYU Medical Center, Dept. Ob/Gyn, Division of Family Planning, 550 First Ave., New York, N.Y. 10016.

Penna. Society of Colon and Rectal Surgery

The Pennsylvania Society of Colon and Rectal Surgery in conjunction with the Pennsylvania State Medical Society will meet at the Host Farm, Lancaster, Pennsylvania, September 17, 2:00 p.m. to 5:00 p.m.

American Society of Anesthesiology

The Annual Session of the American Society of Anesthesiologists will meet in San Francisco, October 25-29. For information write: ASA Headquarters, 515 Busse Highway, Park Ridge, Illinois, 60068.

Clean Air

The 5th Annual Symposium on Air Pollution and Respiratory Disease, sponsored by the New York State Action for Clean Air Committee, will be held on October 23 at New York University Medical Center. For further information write: New York State Action for Clean Air Committee, 105 East 22nd Street, New York 10010.

Pharmacology and Dermatology

A three-day symposium on *The Pharmacology of Selected Drugs Used in Dermatology: Principles of Action and Uses* will be held October 29-31 in Alumni Hall, New York University Medical Center. Detailed information may be obtained from: The Office of the Recorder, New York University Postgraduate Medical School, 550 First Avenue, New York, N. Y.

Disease Detection Symposium

An international symposium on early disease detection will be held in Elkhart, Indiana, October 6. Registration is open to all physicians, without fee. Registration forms can be obtained from DDib, 3553 W. Peterson Avenue, Chicago, Illinois, 60645.

American Academy of Pediatrics

The 38th annual meeting of the American Academy of Pediatrics will be held in Chicago, October 18-23. For information write: American Academy of Pediatrics, Department of Public Information, 1801 Hinman Avenue, Evanston, Illinois, 60204.

Nutrition and Metabolism

The Committee on Nutrition and Metabolism of the Philadelphia County Medical Society will hold its 14th Annual Conference on October 22 in the auditorium of Temple University Medical Center. For further information contact: Michael G. Wohl, M.D., Chairman, or Charles R. Shuman, M.D., Philadelphia County Medical Society, 2100 Spring Garden Street, Philadelphia.

ACP Courses

The American College of Physicians will present a course on Vascular Disease October 1-4 at the Mayo Clinic, Rochester, Minnesota. The ACP will also present a course on Medical Oncology Today October 8-11 at the University of Minnesota School of Medicine. For information write: Edward C. Rosenow, Jr., M.D., Executive Director, American College of Physicians, 4200 Pine Street, Philadelphia, Pa., 19104.

Industrial Nursing Course

A course in *Occupational Health for Nurses* will be given November 10-14, 1969, by the American Association of Industrial Nurses at the New York University Medical Center. Tuition will be $175. For details, write: Office of the Recorder, New York University Postgraduate Medical School, 550 First Avenue, New York, N.Y. 10016.

PG Course

The Department of Otolaryngology of the Illinois Eye and Ear Infirmary and the College of Medicine, University of Illinois, will conduct a postgraduate course in Laryngology and Bronchoesophagology November 3-14. If interested write: Department of Otolaryngology, College of Medicine, University of Illinois at the Medical Center, Post Office Box 6998, Chicago, Illinois, 60680.

SPECIAL REPORTS

Continued from page 252

$3,500 more than he earned in 1967 just to keep at the same place, because of the cost of living increase and the 10% surcharge tax.

The consensus of the panel and fellows was summarized by Dr. Pierre L. LeRoy, President of the Delaware Chapter of the American College of Surgeons, in the following recommendations concerning fiscal responsibility:

1. Make concentrated efforts to reduce medical cost.
2. Use voluntary restraint on fee increases.
3. Reduce hospital stay to absolute minimum necessary for best patient care.
4. Order only necessary laboratory tests consistent with good patient care and good teaching principles.
5. Increase the utilization of extended care and home care services.
6. Separate the cost of medical care into hospital costs and physician fees for better analysis.
7. Encourage health insurance carriers to allow for increased coverage on out-patient diagnostic services.
8. Simplify communications with carriers.
9. Endorse the principle that Medicare and Medicaid patients have freedom of choice in selecting their health facilities.
10. Conduct comprehensive yearly reviews of the sector of fiscal responsibility.

EDITORIALS

Continued from page 253

solve the problems of constructing a workable, efficient, community-wide, health care system. As our medical educational structure graduates more and more increasingly sophisticated "fractionated" specialists and almost no generalists, the public in desperation will inundate the finely tuned "teaching institution," there by negating efforts to teach and imposing an impossible patient load to care for — and with further depersonalization of health care. To this end, the "Triangle" must provide leadership in mobilizing all public resources and concern, and must take the lead to devise methods, experiments and techniques to achieve this type of medical care.

HAROLD S. RAFAL, M.D.

The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

DRUG ABSTRACTS

PROPRANOLOL-ISOSORBIDE

Angina Pectoris

Marked synergism between propranolol hydrochloride (Inderal) and isosorbide dinitrate (Isordil; Sorbitrate) has been reported in patients with severe angina (Russek, H. I.: New Dimension in Angina Pectoris Therapy, Geriatrics 24:81,1969). The present authors contend that combined propranolol-isosorbide therapy may harm as well as benefit patients with angina. Twenty-three patients with angina pectoris were treated with isosorbide dinitrate, 5 mg., sublingually, and propranolol, 40 mg., orally, four times daily for six weeks. The effects were compared with those of appropriate placebos. Three patients (13 per cent) were unable to tolerate the drugs. The patients (13 per cent) had a similar number of attacks of angina on the drug combination as on the placebos. Seven of the 23 patients (30 per cent) had fewer anginal episodes on the drug combination whereas 10 (44 per cent) had fewer attacks on the placebo. Only two of 20 patients (10 per cent) who could tolerate the drug combination showed significant improvement in exercise performance whereas 8 patients (40 per cent) performed significantly better on the placebos. There was no significant difference in exercise performance in 10 of the 20 patients.

These results are disturbing. They imply that 40 per cent of patients who could tolerate the drug combination showed deterioration in exercise performance. It was also disturbing that the two patients who showed significant improvement in exercise tolerance while on the drug combination had a larger number of positive exercise ECG's while receiving the drugs than during placebo administration. "We believe that patients with angina given these drugs should have *exercise-performance and electrocardiograms* after exercise *before and during treatment.* If the exercise performance deteriorates on propranolol plus isosorbide dinitrate, or if the electrocardiogram reveals increased ischemic ST-segment depression on these drugs, these medications should be stopped."

Aronow, W. S. & Kaplan, M. A., NEJM 280:247 (Apr. 17), 1969.

DORIDEN

Neurological Effects

During the commercial availability of thalidomide various reports appeared which showed that the drug commonly produced neuropathy. The chemical similarity of glutethimide (Doriden — Ciba) to thalidomide prompted two investigators to say, in 1961, "It is interesting that similar toxic effects have not been reported in patients taking glutethimide." Later, three observers reported a total of four cases of nervous system damage due to glutethimide. The present authors present three additional cases in which *serious* and *long-lasting* nervous system impairment resulted from the chronic ingestion of the drug. Cerebellar ataxia, especially of gait, was a striking symptom in these cases. All three patients had a mild sensorimotor peripheral neuritis. Glutethimide apparently induces such effects when taken for a year or more in larger daily amounts than the usual sedative dose and, in the present cases, in association with poor nutrition or the ingestion of alcohol.

Haas, D. & Marasigan, A. (Upstate Med. Cent., St. Univ., N. Y.. Syracuse).

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*This is a monthly series of drug information abstracts gathered from current articles and prepared by the pharmacists with the purpose of alerting you on drugs and/or their complications.

THE FORUM

Environment And Health

AIR POLLUTION CONTROL EDUCATION

EUGENE CHESSON, JR., PH.D.

The problem of air pollution is receiving nation-wide attention; however, the additional pollution load from our ongoing industrial and population growth will almost certainly outstrip the present rate of progress unless still greater efforts are made. Increased attention and awareness are needed by professionals — medical, business, engineering, and scientific — as well as by the general public. Formal educational programs are essential to ensure that future business and professional leaders are sharply aware of air pollution and other environmental problems. In-depth education, including evening programs, must be provided for increased numbers of scientists and engineers, especially in the Delaware region along the eastern megalopolis and where major chemical industries are centered.

The above reasoning led to a proposal to the National Air Pollution Control Administration for the establishment of an air pollution control professorship at the University of Delaware. This professor would teach undergraduate and graduate courses in air pollution control, supervise research, and also offer a general course for non-science majors, stressing the needs for conservation of our environment in broader terms.

Because of federal budget restriction, the proposal, which spans five years, has not been funded by NAPCA for 1969-1970. A revised proposal is now in preparation for possible submission for the 1970-1971 school year, and support for this new position is also being actively sought through university budgets and other sources.

The Environmental Engineering program in Civil Engineering at the University of Delaware in water supply, water pollution, wastewater, and solid waste disposal is strong. The addition of an air pollution expert will complement the present program and faculty and will contribute to increased interdisciplinary education and research with professors and students in biology, chemistry, nursing, geography, including meteorology, agriculture, chemical engineering, and others. More importantly, the effects of such a professorship will be felt in coming years as graduating students begin their careers and move away from the university into business, governmental, industrial, technical, and influential community positions.

The establishment of an air pollution professorship at first might appear costly. However, the problems of air pollution are immediate and severe, and should be included in the total environmental engineering program. Interested students are available and the cost can be off-set by long-term considerations for improved control of air pollution, a major threat to our environment and as such of great importance to us all.

Dr. Chesson is Professor and Chairman of the Department of Civil Engineering at the University of Delaware.

This page is sponsored by the Delaware Tuberculosis and Health Society

CHARLES M. MOYER, M.D.

President, Medical Society of Delaware, 1968-1969

MEDICAL SOCIETY OF DELAWARE

1776-1789-1969

180th ANNUAL MEETING

OCTOBER 24 and 25, 1969

PROGRAM

HOUSE OF DELEGATES

October 24

Delaware Academy of Medicine
1925 Lovering Avenue, Wilmington

2:00 P.M. House of Delegates

5:00 P.M. Reception for Delegates

SOCIO-SCIENTIFIC SESSION

October 25

Delaware Academy of Medicine
1925 Lovering Avenue, Wilmington

A.M.
8:30 REGISTRATION — EXHIBITS

9:00 Call to Order — Charles M. Moyer, M.D., President, Medical Society of Delaware
Welcoming Remarks—John C. Rawlins, M.D., President, Sussex County Medical Society
Report of the House of Delegates — Joseph W. Abbiss, M.D., Secretary, Medical Society of Delaware

Cyril H.
Wecht, M.D.

9:15 MALPRACTICE AND MALPRACTICE INSURANCE — Cyril H. Wecht, M.D., J.D., President, American College of Legal Medicine, Research Professor of Law and Director, Institute of Forensic Sciences, Duquesne University

9:55 MEDICAL EDUCATION — Julius B. Richmond, M.D., Dean, The College of Medicine, and Chairman of Department of Pediatrics, State University of New York, Syracuse, New York

Julius B.
Richmond, M.D.

10:35 INTERMISSION — EXHIBITS

Approved for 6 hours AAGP Credit

11:00 AN EFFECTIVE MEDICAL EXAMINER SYSTEM — Milton Helpern, M.D., Chief Medical Examiner, City of New York, Professor and Chairman, Department of Forensic Medicine, New York University Schools of Medicine

Milton Helpern, M.D.

11:40 PRESIDENT'S ADDRESS — Charles M. Moyer, M.D.
Business Meeting
Election of President-Elect

12:35 LUNCH — Host, Sussex County Medical Society

Alexander H. Hirschfeld, M.D.

2:00 MEDICINE IN THE INNER CITY — Alexander H. Hirschfeld, M.D., Clinical Professor of Psychiatry, Wayne State University, Visiting Professor in Postgraduate Medicine, University of Southern California Medical School and University of Colorado Medical School

2:40 INTERMISSION — EXHIBITS

3:00 CARDIAC REPLACEMENT — Michael E. DeBakey, M.D, President and Chief Executive Officer, Baylor College of Medicine

Michael E. DeBakey, M.D.

3:40 ADJOURNMENT

WILMINGTON COUNTRY CLUB
Kennett Pike, Wilmington

6:30 Cocktails
7:30 Annual Banquet
Invocation — The Reverend James R. Hughes, Minister, Aldersgate United Methodist Church
Dancing 'til 12:30 A.M. — Paul Wilkinson's Orchestra

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PROGRAM of the FORTIETH ANNUAL MEETING

THE WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF DELAWARE

SATURDAY, OCTOBER 25, 1969 Wilmington Country Club, Kennett Pike

10:00 A.M. Registration and Coffee Hour
10:30 A.M. General Session
Call to Order — Mrs. Richard H. Weiss, President
Pledge of Loyalty
Address of Welcome—Mrs. James J. Gallagher, President, New Castle County Auxiliary
Introduction of Guests
Roll Call of Delegates—Mrs. Allston J. Morris, Secretary
Treasurer's Report—Mrs. Ignatius J. Tikellis
Reports of County Auxiliaries
  Kent—Mrs. F. B. Lane Haines
  New Castle—Mrs. Howard Wilk
  Sussex—Mrs. Joseph Elliott
National Convention—1969 Delegate's Report—Mrs. Leslie W. Whitney
Reports of Priority Committees
Report of the President—Mrs. Richard H. Weiss
Report of the Nominating Committee — Mrs. Harold J. Laggner
Election and Installation of Officers
12:30 P.M. Luncheon
Invocation
Greetings from the Medical Society of Delaware, Charles M. Moyer, M.D., President
Address—Mrs. John J. Williams, Wife of Delaware's Senior U.S. Senator
Presentation of Past President's Pin
Adjournment

EXHIBITORS

No. 1—Stuart Division/ATLAS CHEMICAL INDUSTRIES, INC.

A cordial invitation is extended to all members and guests attending this meeting to visit the Stuart Division booth. Trained representatives will be in attendance to answer your questions on our products: DIALOSE®, DIALOSE® PLUS, MULVIDREN®, MULVIDREN®-F, MYLANTA®, MYLICON®, STUART PRENATAL®, STUART PRENATAL® w/Folic Acid, and SORBITRATE®.

No. 2—Roche Laboratories

You are cordially invited to visit tht Roche display featuring Valium. The Roche Representative will gladly answer any questions you may have on this or any other product in the Roche line.

No. 3—Mead Johnson Laboratories

Representatives Carl Schultze and Ron Rinard welcome you and your friends to stop by their booth. They have some exciting new product information you will be interested in.

No. 4 & 5—Eli Curi, M.D.

The purpose of this exhibit is to illustrate the effectiveness of Reconstructive Vascular Surgery, as a treatment for the various types of Vascular Pathologies. Two hundred and four patients treated by different methods of reconstruction are analyzed in a graphic chart.

No. 6—THE EMKO COMPANY

THE EMKO COMPANY exhibits the first aerosol foam contraceptive. EMKO VAGINAL FOAM has been professionally recommended for over eight years. It has a high level of effectiveness without side effects. Literature and samples of EMKO and MY OWN VAGINAL DEODORANT SPRAY AND TOWELETTES available at the EMKO exhibit.

No. 7—G. D. Searle & Co.

You are cordially invited to visit the SEARLE booth where our representatives will be happy to answer any questions regarding Searle Products of Research. Featured will be information on Ovulen-21, Ovulen-28, Enovid, Aldactazide, Flagyl, Lomotil, Pro-Banthine and other drugs of interest.

No. 8—Pitney-Bowes, Inc.

Pitney-Bowes, Inc., the originator of metered mail, offers a "sure cure" for "billing pains". Our rapid ledger card billing system affords automatic copying, folding, inserting and meter-stamping billings at the approximate rate of 350 completed, ready-to-mail statements in just an hour's time.

No. 9—Endo Laboratories Inc.

Endo Laboratories will present the latest clinical information relating to our products, COUMADIN® (WARFARIN SODIUM), NUMORPHAN® (OXYMORPHONE) HCL, PERCODAN®, PERCODAN®-DEMI, HYCOMINE®, HYCOMINE®-COMPOUND, HYCODAN® VALPIN® (ANISOTROPINE METHYLBROMIDE), VALPIN®-PB (ANISOTROPINE METHYLBROMIDE WITH PHENOBARBITAL), PERCOGESIC®, PERCOGESIC®-C., HYCOMINE®-PEDIATRIC.

No. 10—Warner-Chilcott Laboratories

Your Warner-Chilcott Representatives cordially invite the members of the Medical Society of Delaware to see and discuss "what's new" at Warner-Chilcott Booth No. 10.

No. 11—Schering Laboratories

Schering Laboratories invite you to visit their exhibit, Booth Space No. 11, where their representatives will be available to discuss with you any questions you may have on AFRIN®, CELESTONE® SOLUSPAN® Injection, TINACTIN®, GARAMYCIN®, DRIXORAL®, VALISONE®, ETRAFON®, or any other Schering product.

No. 12—Bristol Laboratories

Bristol Laboratories' exhibit features POLYCILLIN (ampicillin trihydrate). This member of the Bristol family of synthetic penicillins is the first oral penicillin bactericidal against a significant number of Gram-negative and full spectrum of penicillin G- sensitive Gram-positive pathogens.

No. 13—Smith Kline & French Laboratories

Representatives will be on hand to answer your specific questions and provide information on their products and services.

No. 14—Mutual Benefit Life Insurance Company

Walter B. Suskind, C. L. U., Agency of Mutual Benefit Life Insurance Company presents "Financial Planning for the Physician". There will be special emphasis this year on the Professional Corporation, including the tax-shelters relating to insurance and retirement. Mutual Benefit has been appointed by the AMA as one of the four administrators for their retirement plan for physicians.

No. 15—PRO Services, Inc.

Distributor: Modern America Securities Corp.

PRO Services, Inc. is a full service financial organization specializing in tax-sheltered retirement programs; it is administrator for professional society Keogh programs, handles over 80 mutual funds (including no-load PRO Fund), and through Cannon & Company, a brokerage subsidiary, manages general securities accounts.

No. 16—Wyeth Laboratories

Representatives Bob Dulick, Bill Greenfield, and Dave Cooper will be at your service at the Wyeth exhibit. Featured will be OVRAL^T, Wyeth's low dosage oral contraceptive, and their anti-anxiety agent, SERAX^T.

No. 17—Merck Sharp & Dohme

The Merck Sharp & Dohme exhibit has been designed to supplement the physician's therapeutic armamentarium. Technically trained personnel are present to discuss the scope and variety of services offered.

No. 18—John G. Merkel & Sons, Inc.

See the latest and finest in Medical and Laboratory equipment for hospital or office and the latest equipment for the home care of your patient. This equipment available upon request.

No. 19—Wallace Pharmaceuticals

Jeff Voluck, the Wallace Representative from Delaware, will be present to answer any questions. Jeff cordially invites all members and guests of the Society to stop by.

No. 20—Scientific Publications

Our 15 years in close contact with the medical profession enables us to serve you promptly and efficiently in this dedicated field. Non-medical books are also available through our Trade Department for your convenience. Located just outside Philadelphia adjacent to International Airport on Alternate Rt. 13 — our services are used by many institutions along the eastern coastline.

No. 21—Gray Audograph Agency

Gray Audograph now offers Magnetic Tape, Magnetic Belt and Embossed Disc Dictation equipment. The new 1½lb. Gray Portable features ½ or 1 hour recording time as well as outstanding fidelity and clarity.

This instrument will also serve as a playback unit for pre-recorded medical information cartridges.

No. 22—CIBA Pharmaceutical Company
CIBA wishes the Medical Society of Delaware a successful 1969 meeting. Its Delaware Representative will be available to answer any questions relating to CIBA Pharmaceutical products.

No. 23—IVES LABORATORIES, INC.
IVES LABORATORIES, New York, will display the family of ISORDIL® (isosorbide dinitrate) products, providing a dosage form suitable to the needs of each patient with angina pectoris (the pain of coronary artery disease). There will also be featured CYCLOSPASMOL® (cyclandelate), a peripheral and cerebral vasodilator. Representatives will be in attendance to discuss these products and other IVES specialties with you.

No. 24—The Delaware State Board of Health
Our display is designed around the theme "Family Planning". Visual aid materials include photographs of the family unit, a listing of Family Planning Services and services provided by our extensive health service clinics. Handout literature will be available.

No. 27—Libby Surgical Supply Company
Instruments, diagnostic and treatment supplies. We wish the members of the Medical Society of Delaware a most successful meeting. Please stop by our booth and say hello.

No. 28—Cappeau's Drug Stores
Cappeau's five drug stores in Wilmington, Willow Run, Newark, Middletown, and New Castle welcome members of the Medical Society of Delaware to visit their exhibit.

No. 29—J. A. Montgomery, Inc.
Members of the Medical Society of Delaware are cordially invited to seek the latest information on any type of insurance, estate planning, or tax savings. J. A. Montgomery professional specialists will be on hand.

No. 30—J. B. Lippincott Company
Exciting new clinical titles for 1969 at Lippincott's include Ritota, DIAGNOSTIC ELECTROCARDIOGRAPHY, Schiff, DISEASES OF THE LIVER. new 3rd edition, TeLinde and Mattingly, OPERATIVE GYNECOLOGY, new 4th edition, Platt, COLOR ATLAS AND TEXT OF HEMATOLOGY, Greenfield, RADIOLOGY OF BONE DISEASES and Barber and Graber, QUICK REFERENCE TO OB-GYN PROCEDURES. Also on display are Collins, ILLUSTRATED MANUAL OF LABORATORY DIAGNOSIS, Wood, DISEASES OF THE HEART AND CIRCULATION and the rest of the Lippincott line of books and journals.

No. 31—Charles Lentz and Sons
Mr. LeVanReber, our salesman in attendance, welcomes your questions about our complete line of medical and surgical supplies, sales, and service.

No. 32—Lakeside Laboratories, Inc.
Products being featured by Lakeside Laboratories, Inc. are Imferon, Norpramin, Mercuhydrin, Metatensin, Metahydrin and Cantil.

No. 33—Exercise of Delaware
This company is distributor for the Ortho-Kinetics Cushion-Lift Power Chair, which is a great aid for the aged, arthritic, stroke victim or Parkinson sufferer. Other items available: Exercise Bikes, Massage Belts, Jogger-Treadmills, Hydraulic Rowing Machines, Steam Baths, and Zeigler Facial Exerciser. Demonstrations are given in the home.

No. 34—The Coca-Cola Company
Ice Cold Coca-Cola served through the courtesy and cooperation of the Delaware Coca-Cola Bottling Company of Wilmington and The Coca-Cola Company USA.

No. 35—Sandoz Pharmaceuticals
Sandoz Pharmaceuticals cordially invites you to visit our display at Booth #35, where we are featuring Mellaril, Sansert, Cafergot P-B, Fiorinal and Fiorinal with codeine. Any of our representatives in attendance will gladly answer questions about these and other Sandoz products.

No. 36—William P. Poythress & Company, Inc.
The Poythress exhibit will feature Trocinate, a unique, direct-acting (musculotropic) anti-spasmodic drug, and the Mudrane combinations, established Poythress products for relief of bronchial asthma. Solfoton, Solfo-Serpine, Panalgesic and Synirin will also be featured. Your requests for literature and professional trial quantities are cordially invited.

No. 37—Blue Cross and Blue Shield of Delaware, Inc.
The broader approach in hospital and surgical-medical benefits is the major theme of the display of Blue Cross and Blue Shield of Delaware. Comprehensive health care benefits, coupled with soundly conceived programs designed to meet all levels of consumer demand, will be the principal part of the presentation.

No. 38—Bertholon-Rowland, Inc.
The Medical Society of Delaware sponsored Accident and Sickness Plan has been available to the members since 1953. Representatives of the Bertholon-Rowland Agencies welcome this opportunity to review the important features of your group program.

Time and Place

The House of Delegates will meet at 2:00 P.M., Friday, October 24, at the Delaware Academy of Medicine. Following the business session there will be a Reception for Delegates. The Socio-Scientific Session will be held Saturday, October 25 at the Delaware Academy of Medicine, 1925 Lovering Avenue, Wilmington at 8:30 A.M. The Woman's Auxiliary will meet at 10:00 A.M., Saturday, October 25 at the Wilmington Country Club. The annual dinner-dance will be held at 6:30 P.M., Saturday, October 25 at the Wilmington Country Club.

Registration

The registration desk will open at 8:30 A.M. on October 25 at the Delaware Academy of Medicine. Coffee will be served by the Delaware Association of Medical Assistants during the registration period. Admission to all sessions will be by badge secured at the registration desk.

The Medical Society of Delaware gratefully acknowledges the assistance of the following in the presentation of the program:

Bristol Laboratories
CIBA Pharmaceutical Company
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Merck Sharp & Dohme
Roche Laboratories
William H. Rorer, Inc.
Sandoz Pharmaceuticals
Stuart Division, ATLAS
Chemical Industries, Inc.
Wyeth Laboratories

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THE VOLUNTARY AGENCY: TOMORROW'S ROLE

• Today, in looking at public health programs a question has arisen as to their relevancy to the health problems which they were formed to combat. This paper presented to the Annual Meeting of the Delaware Tuberculosis and Health Society examines the respective roles and activities of the State Board of Health and voluntary health agencies.

Edward F. Gliwa, M.D.

One problem that we are faced with today in public health is relevancy. In this paper I would like to examine some of our official and voluntary agencies, the services they offer, and the methods they employ in providing health services. In the course of such an examination, the following questions can be asked: Are these organizations being innovative and imaginative or are they using outdated methods of working toward solutions? What is tomorrow's role for the voluntary agency? This last question is one of much importance and is the particular topic of this discussion.

There are as many facets to providing public health care as there are groups involved. There are the private sector of medicine, government health departments, hospitals, and voluntary agencies, all of whom have different capabilities. Unfortunately, in the past, some worn-out approaches to the same rather poorly defined problems have been used by many of these. Furthermore, the services provided have been overlapping and inefficient when a combined effort of resources, technology, and cooperation between voluntary agencies and/or state official agencies would bring about greater success. This type of ideal cooperation describes the relationship of the Delaware Tuberculosis and Health Society and the Delaware State Board of Health and has been most effective.

Editorial comments appear on page 281

I do not wish to slight the advances that some of us, both individually and collectively, have made over the years. They have been considerable. But now we should look at our efforts in providing services today and in the future. And perhaps we may find that the time has come for us to be more like Emily P. Bissell. She was an innovator. When she brought the Swedish Christmas Stamp to America, she was choosing methodology which was relevant to the situation.

At the State Board of Health, we have already begun this rather difficult task of examining ourselves and, hopefully, are now committed to a new way of looking at public

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Dr. Gliwa is Deputy State Health Officer, Delaware State Board of Health.

health problems. All too often in past years, health agencies have concerned themselves with the measurement of program *activities* rather than program *results*. For example, we have tended to measure the number of screening tests, x-rays, nursing visits, clinic visits, etc., rather than the actual results of our endeavors. Let it be granted that program activities are important, but unless they produce some measurable impact on health problems, they are meaningless.

The ultimate objective we all share is the elimination of health problems and the subsequent reduction of morbidity and disability. How do we get there? As far as tuberculosis is concerned, there are three basic approaches:

1. Identify the active cases.
2. Provide adequate therapy for these cases.
3. Keep these cases non-infectious.

In Delaware's chest x-ray program last year, we examined 70,000 people and found six pulmonary cases of tuberculosis or one case in every 12,000 persons examined. Incidentally, this program also uncovered other pulmonary diseases such as cancer and diseases of the cardiovascular system.

We tuberculin skin tested 22,000 children and identified five new active cases or one case for every 4,400 persons examined.

How can we improve these programs? It is obvious we must concentrate our efforts in those areas of high incidence and be selective by examining high incidence age groups. One of our problems is that in the past these programs have been generalized throughout the state, thus diluting our success.

Known Source

It is now known that six out of every seven cases of tuberculosis come from positive reactors, with most of these reactors being over forty years old. There is also proof that isoniazid chemoprophylaxis prevents active disease from occurring in positive reactors. A recent study conducted by the U.S. Public Health Service showed that prophylactic treatment of inactive infected individuals who have not previously had the benefit of chemotherapy is followed by a much lower activation rate than in those not treated, the ratio being 75 to 1 over a period of three years. We know that there are approximately 50,000 positive reactors in the state of Delaware from a study participated in by the State Board of Health and the Delaware Tuberculosis and Health Society. We should now become seriously involved in locating these reactors and placing them on INH, thus preventing the occurrence of active disease and spread of infection.

Although it is important to identify an active case of tuberculosis by an x-ray program, this is not a good method of prevention since by the time TB is diagnosed by x-ray, the patient is already infectious and probably has already infected his close associates. If the medical profession and the health agencies would instead identify 10,000 tuberculin reactors per year for five years and place them all on chemoprophylaxis, for all practical purposes, the reservoir from which our tuberculosis comes would be eliminated. All patients in all hospitals and all clinics throughout the State whose medical history does not include a positive tuberculin test should have such a test in their routine work-up. This method would find new tuberculin reactors who would then be placed on chemoprophylaxis. As public health resources and funds have become available, we have already been offering more and more chemoprophylaxis to older tuberculin reactors; for the ultimate measure of success is to keep patients non-infectious once they have been identified. In other words, in order to measure our successes and failures in tuberculosis control, all we have to do is see how many reactivations we have.

We are currently succeeding, for the most part, in providing chemotherapy for our known cases and in keeping them non-infectious. But, in order that a greater impact on disease can be brought about, we must try new approaches, such as identification of all positive reactors to whom prophylactic treatment will be given, thus preventing disease. Then if we can find the remaining persons in the State with infectious tuberculosis, we can eliminate tuberculosis as a problem and utilize our resources for other health problems that plague our people.

To solve the health problems of this or any state, we must (1) develop adequate health services and (2) bring the services to the people in need of them.

Need for Education

In both of these there is a need for education. In order for health programs to be formulated, a need for them must be realized and people must act to bring them into existence. Once these programs exist in the proper form, the high risk people must be made aware of them and motivated to take advantage of these services.

This last is more difficult than it seems, for first these people must be located. From our experience in the mobile x-ray unit, we have found that the people who actively seek to check their health are generally the ones who are healthy; and those people who are unhealthy are not usually the ones who take advantage of such screening tests. Perhaps the apathy of these individuals is bred by the same conditions that allowed them to become infected with *Mycobacterium tuberculosis* or whatever they suffer from; we don't know. But, we do know that the underprivileged, the poor, the ghetto dwellers are the ones who suffer most from health problems and are most in need of health services. It is this type of person, the medically indigent and socially deprived, who must be reached if we are to have successful programs to eliminate our major health problems from the State in the foreseeable future.

This is a difficult task, for these people have proven to be those most difficult to motivate. In spite of the fact that their health is in the balance, their lack of education and almost insurmountable apathy pose great threats in terms of the successful achievement of health goals. The fact that the poor are the most in need of health care is not just a problem faced by Tuberculosis and Health Societies; most voluntary agencies must face this same fact. A disease entity may not be one which is exclusively a problem of the poor. But the upper and middle classes can usually afford and will seek their own medical care, while the medically indigent need all the assistance they can get. Thus most voluntary agencies should be equally concerned with the plight of the poor.

Public Response

At a recent meeting at the National Communicable Disease Center in Atlanta, a professor from the University of North Carolina spoke on the epidemiology of public response. The most interesting point he made was that it is easier to change a health program than it is to change a person's way of life. With the proper combination of change and innovation on the part of health departments and the voluntary agencies who provide support for health departments, we could become far more efficient in our attack on health problems in the country. Instead of structuring health programs for our own comfort, the time is here for making them convenient for the recipient for whom, after all, they exist. Public agencies and their employees have historically worked what we traditionally used to call "banker's hours," not for the benefit of those who are served but for the agencies' own benefit. But even bankers now work Friday evening.

We must begin to *serve*, not just to *offer services*; there is an important distinction between the two. To serve implies an actual action being done and a service being received. To offer service merely means making the service available and hoping that the right person comes by to take advantage of it. We must reduce all possible reasons for a person not taking advantage of what we offer. To them, advantages of immediate convenience may well outweigh the advantages of improved future health. The time, the location, the personnel, and the motivation must be aimed at the person in need of the service, not the person offering the service.

The voluntary agency's chief role in the future will be not in the area of clinical services but in the area of stimulation, motivation and communication. It is in this specialized area that the voluntary agency can be of the most value for the consumer of services by making his needs heard and understood to those offering the service and, on the reverse side of the coin, by making the services avail-

Continued on page 279

CLIMATOLOGY AND MEDICINE

Article V

Lewis B. Flinn, M.D.

In the preceding article in this series it was noted that the great surge of medicine which followed the fall of Byzantium and the onset of the Renaissance was coincident with a period of cool, moist weather.

From 1600-1900 A.D. the climate varied slightly, hotter in the early 17th century and colder in the 19th century. During this period medicine became divorced from the church. Thomas Sydenham, Boerhave, William Cullen, Samuel Johnson, Richard Mead, Morgagni, John Hunter, were all prominent 18th century physicians.

Many physicians at this period were most fastidious and dressed in the very highest fashion. The gold-headed cane became an emblem of great esteem. It was carried by the leading physician in London, and at his demise his successor inherited the cane. As delightfully described by MacMichael[1] the cane's golden head contained highly pungent perfume supposed to protect the doctor from the patient's noxious fumes and so help him to avoid contracting disease. One of the most celebrated carriers of the cane was Dr. Richard Mead as portrayed in Figure 5 taken from Bettemann's *A Pictorial History of Medicine.*[2]

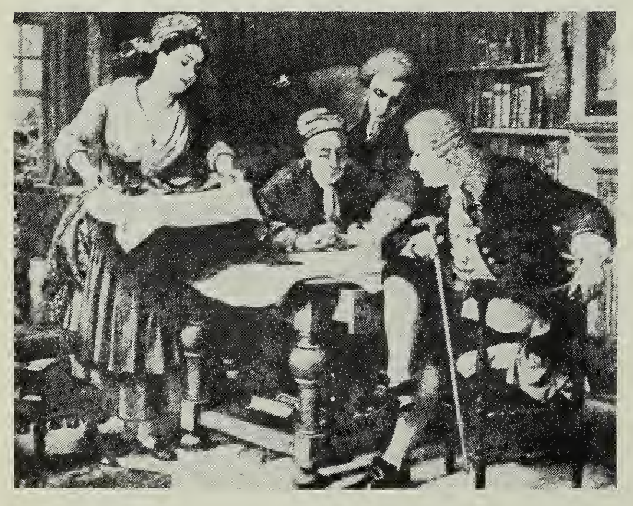

FIGURE 5

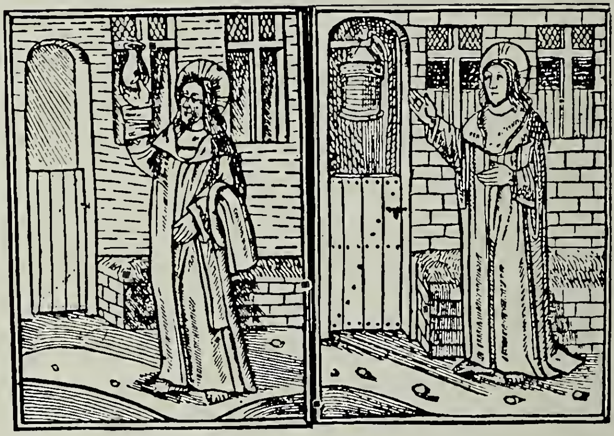

FIGURE 6

For about 500 years after 1200 A.D. inspection of the urine loomed large in diagnosis and especially among fashionable consultants. Major,[3] in his history of medicine, displays a cut of an interesting Dutch engraving in which Christ, the Great Healer, is shown inspecting a urinal. (Figure 6)

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Dr. Flinn is Honorary Physician, Department of Medicine, Wilmington Medical Center.

REHABILITATION OF THE INJURED ATHLETE

• Sports medicine has made great strides in the prevention and treatment of athletic injuries. The author suggests that the greatest room for improvement in this specialized area is in the rehabilitation of the injured athlete and that exercise is probably the most effective treatment modality.

C. Roy Rylander, Ph.D.

A college trainer or a high school coach who finds it necessary to handle his own training problems in addition to his coaching or a local physician who helps out with a high school program will find that his duties in the training area are divided into three fields: the prevention of injuries, the treatment of injuries, and the rehabilitation of the injured athlete. In a successful athletic program, the essential ingredient is complete mutual confidence and cooperation of coach, trainer and physician, with the physician being the final authority regarding the first aid, treatment and rehabilitation of the injured athlete.[1]

Prevention, treatment, and rehabilitation are each important parts of the overall injury care program. Great strides have been made in the area of prevention regarding equipment, conditioning and the discouragement of tactics endangering the players. Similarly, sports medicine has made great advances in treatment including prompt, accurate and complete examination and diagnosis of the degree of the injury, and the development and use of physical therapy modalities sometimes in conjunction with the use of drugs such as muscle relaxants, anti-inflammatory corticosteroids, and oral enzymes.[2]

An integral part of the treatment of any injury is rehabilitation, but it is in this area where coaches, trainers and physicians have most neglected the athletes. In too many instances, an injured athlete is pronounced recovered and free of symptoms and immediately returned to full duty, with or without supportive wrappings, only to become re-injured very shortly thereafter. It is in the area of rehabilitation where the greatest contribution toward our injury care program can still be made. Of all the modalities available for the treatment of athletic injuries, probably the most effective is active exercise.[3,4] This includes isometric and isotonic exercise programs.

O'Donoghue[1] lists five concepts of treatment to govern the rehabilitation program.

They are:

1. Treatment must be prompt to minimize severity and disability.
2. The best treatment possible must be used.
3. Expediency is to be avoided.
4. Competitive ability should be restored.
5. The goal must be complete recovery.

Rehabilitation

The passage of time is not a measure of rehabilitation.[5] Rehabilitation is a fundamental part of the treatment of any injury and deals primarily with the restoration of muscle function. Treatment should therefore be based not only upon the evaluation of the bones and the joints concerned, but equally upon consideration of the status of the muscle.[6] Athletic injuries are in large part peculiar to the performance requirements for each particular sport. The injuries are characterized by recurrent exposure to injury-producing circumstances, making re-injury a strong pos-

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Dr. Rylander, Ph.D., FACSM, is Professor of Physical Education and Head Trainer, Athletic Department, University of Delaware, Newark, Delaware.

sibility. In addition, the athlete is subject to the strains of all-out performance and therefore requires repair and rebuilding of injured parts beyond that ordinarily required for normal or sedentary activity.[1]

Restoration of muscle function is accomplished by an exercise program which is based on an evaluation of muscle strength, muscle flexibility or elasticity, and the ability of the muscle to relax.

Muscle function and strength will be increased if the exercises are repeated often enough and with sufficient intensity to exceed easy performance in each exercise period; if the exercise sessions are on a regular basis and for a long total period of time; and if the exercises performed are identical.

Ideally, muscle strength of the injured side should be graded[7] and compared with the uninjured side before strengthening exercises are prescribed. This is of value in demonstrating dramatically to the coach and player concerned just how much strength has been lost, in measuring progress, and in setting up a progressive exercise program of sufficient intensity.

Athletes today spend a great deal of time and effort readying themselves for a sport season by developing strength, endurance, flexibility and agility. The same principles apply to the redevelopment of these qualities in muscles weakened through injury. Repeated usage of a small or low weight develops endurance; few repetitions with high resistance develops strength. It should be pointed out that it is possible to cause pain and a decrease in strength with an overly-ambitious program.

Karpovich[8] and Hooks,[9] in their texts on weight training in athletics, present general rules for determining how much weight to use. For exercises involving the upper extremities and the chest, Karpovich and Murray advocate starting out with a weight which can be handled for a maximum of eight repetitions. One repetition is then added for each training period until twelve repetitions are reached. At this point five to ten pounds are added with the number of repetitions starting again at eight with the same upward progression. For exercising the legs and lower back a weight is chosen which can be handled a maximum of ten repetitions. One repetition is added each training period until the number of repetitions reaches 15 to 18, at which time ten or twenty pounds are added and the cycle restarted. Klein[10] has developed a progressive resistive program for strengthening the quadriceps and hamstrings of which some exercises have a maximum of one to four repetitions.

Often because of pain and weakness following injury, active and passive assistive exercises[11] without weights, with gravity eliminated, or simply against gravity are required initially. Active resistive exercises have several advantages. Strength of a muscle or group of muscles varies at the various positions in the joint range. Therefore, in order to complete a range of movement the use of weights must necessarily be limited to the maximum weight that can be lifted through the full range. This is generally much less than the weight which can be handled in the sector of maximum capacity. In addition, manual resistance and assistance enable strengthening as well as stretching of tight muscles in one exercise period. This is not possible with weights[6]. At no time in the rehabilitation of muscle or joint injuries should forcible manipulations be used; this only causes additional tissue damage and delay in recovery.

Both isotonic and isometric exercises may be used. Isotonic exercise becomes isometric exercise when the last possible repetition is reached, and has the additional advantage of developing the cardio-vascular-respiratory system. Isometrics, when done properly, have the advantage of being able to develop specifically the particularly weak sectors in the range of motion of a joint. Bender[12] uses this exercise technique in his multiple-angle testing method for evaluation and development of muscle strength, but this requires rather expensive equipment.

I personally favor isotonic exercise. The trainer and the player then know the status of strength on any given day and do not need expensive equipment to determine this. In addition, the player seems to develop more confidence through participation in the isotonic program, and this is important.

The use of electrical muscle stimulation, ultrasound, the application of ice or ethyl chloride, and the use of muscle relaxant and anti-inflammatory drugs, when and where applicable as determined by a physician, may be helpful in the early stages of restoration of function.

Return to Unlimited Activity

The question arises, "When is an injured player to be allowed to return to his sport without restriction?" In general the answers to this are when the range of motion of the affected part is normal, when the injured side is at least approximately as strong as the uninjured side, and when, with special strapping or protection, the athlete is symptom free.[5] Equally important is that when this point is reached, the athete's confidence has been fully restored. Re-injury is then largely a matter of coincidence.

At the University of Delaware,[13] for example, a boy with a sprained knee is deemed sufficiently recovered when he can fully extend the knee, with a 60-pound load, ten times in forty seconds and run a tight figure "8" at full speed (while taped) without pain or feeling of weakness.

Fortunately, with injured athletes we are dealing with young people who are in otherwise good health, have good conditioning, are highly motivated, and possess a natural disposition for maximum restoration, all of which enables them to return to their sport in the shortest possible time.

Summary

Great strides have been made in the areas of prevention of athletic injuries and in the care and treatment of those injuries which inevitably occur. It is in the area of rehabilitation of the injured athlete where there is much room for improvement in our injury care program. Exercise is probably the most effective treatment modality, and exercise prescribed should use the techniques of De Lorme's progressive resistance exercise. Minimum levels of muscle strength for each particular muscle group, especially for knee, shoulder and low back injuries, should be obtained before an athlete is allowed to return to play without restriction. The passage of time is not a measure of rehabilitation.

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WINSTON ATE WELL

The importance of nutrition has been difficult to sell and, unfortunately, enough quacks and crackpots have become interested in it to give it a bad name. Those who doubt the importance of nutrition can point to individuals like Winston Churchill, who lived magnificently to old age and at the same time violated many of the rules of good nutrition. With the recognition of biochemical individuality, the validity of the Winston Churchill argument vanishes. It is clear that he ate about what he needed.

Roger Williams, Ph.D., Prof. of Chem., University of Texas.

CRYPTORCHISM: A Brief Review of Current Concepts

• **Cryptorchism has been overlooked as an important predisposing factor in neoplastic changes of testicles and in fertility. Proper management by pediatrician and urologist may greatly diminish this serious risk.**

J. E. DeCaestecker, M.D.
Alex M. Raney, M.D.

Originally, cryptorchism was defined as the condition of abdominal undescended testes. It is now applied to all forms of undescended testes. Yet a testis is truly undescended only when it cannot be brought down to the depth of the scrotum by proper manipulation.

The embryonic testes are initially located high in the retroperitoneal space of the abdominal cavity high in a position close to that of the adrenals and kidneys. Their migration takes place retroperitoneally and follows the pathway of the processus vaginalis which extends into the scrotum. The testes remain extraperitoneal until the eighth month of fetal life at which time they normally enter the scrotum.

Approximately 10% of all newborns have cryptorchism. Of this 10%, approximately 90% will have their testes descend spontaneously and 10% will remain undescended.[1]

In 3% of all cases of apparent undescended testes, the testes are congenitally absent.[2] In the remaining 97%, the testes are located as follows: 75% in the inguinal region, 20% in the abdominal region, and 5% in ectopic positions. These ectopic positions may be perineal, penile, crural, pubic or trans-abdominal. (Figure 1)

Unilateral cryptorchism is three times more common than bilateral and is probably due to congenital narrowing or obstruction of inguinal canal or upper scrotum. Associated congenital genito-urinary anomalies are also encountered in one-third of the cases.[3]

Cryptorchism warrants therapy for two principal reasons: diminished physiological activity and the statisticallly higher incidence of neoplasia in undescended testes.

Another important factor is the psychological need for testicular descent. Some young boys may develop a feeling of deficiency because of the absence of scrotal testes.

The functions of the testes are hormonal secretion and spermatogenesis. Secretion of testosterone by the Leydig's cells and of estrogen by the Sertoli's cells continues despite an abdominal position of undescended testes. A clinical response to follicle-stimulating hormone and luteinizing hormone regarding the secondary male sex characteristics may occur even though there is atrophy of seminiferous tubules in an undescended testis.

If the testis has not descended at puberty, the tubular structures undergo irreversible changes and will fail to show any spermatogenesis.[4] Engle and Robinson[5] found that the histologic correlation between testicular development and age seems to occur in four stages. In stage 1, the seminiferous tubules are made up primarily of two types of cells, undifferentiated Sertoli's cells and spermatogonia. The interstitial cells of Leydig are very scanty. In the second stage, which occurs between the ages of five and ten years, the stroma between the tubules diminishes and tubular tortuosity increases. From the age of ten years onwards, (stage 3) the spermatogonia begin to mature into spermatozoa. The final stage, starting at the age of fifteen, shows normal adult histological structures.

The cryptorchid testis does not follow this

Dr. DeCaestecker is Urology Resident and Dr. Raney is Chief, Urology Section, Surgical Service, Veterans Administration Hospital, Wilmington, Delaware.

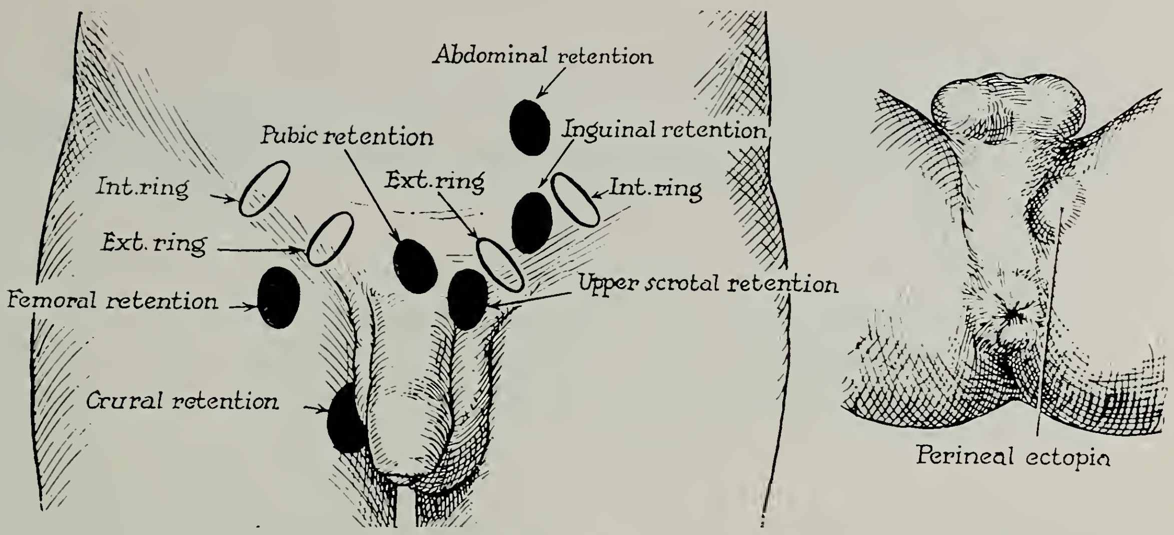

Figure 1*
* The position of testes in congenital testicular ectopia.

normal pattern development. Instead of progressing at age five to the second stage, the undescended testis remains in the first stage, and in its further development it continues to remain at least one stage behind the normal for that age. Engle and Robinson concluded that if the testis has not descended by puberty it will always fail to show fertility, and irreparable damage to the tubular structure will have occurred.

Charny,[6] by studying numerous testicular biopsies obtained at orchiopexy, found minimal developmental delay in patients at or after puberty. He also performed testicular biopsies on seventy infertile patients with a history of orchiopexy during childhood and found not a single instance of normal spermatogenesis.

Sohval[7] in his study of testicular biopsies done on cryptorchids found that 50% of the cases had testicular dysgenesis. He considers testicular dysgenesis a possible etiology of cryptorchism, rather than vice versa.

Statistically it has been shown that the incidence of neoplasia in the cryptorchid is significantly higher than in the normal.[8,9] Of all testicular tumors, 11% arise from testes that are or were undescended at some time. Since the population index for undescended testes is 0.2%, the chance of an undescended testis becoming malignant is fifty times higher than would be expected by chance association.

There is no general agreed-upon pattern for the treatment of all cases of cryptorchism. It is the consensus that prior to orchiopexy in children a course of chorionic gonadotropin be given (4,000 units twice a week for two weeks or 4,000 units every other day for four times).[10] Every effort should be made to perform orchiopexy in the pre-pubertal years, preferably between the age of five and ten years. With a few exceptions, orchiopexy should be done as early as possible. A hernia, a palpable testis in ectopic position, pain or recurrent torsions are important reasons for early operative intervention.

There is also disagreement regarding treatment of undescended testis in adulthood. It is presently believed that the risk of surgical correction is greater than the danger of neoplastic changes in undescended adult testes. Therefore, observation may be an acceptable approach.

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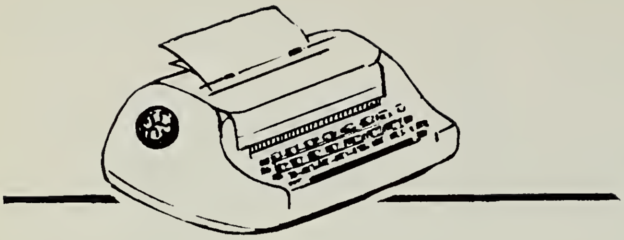

Special Reports

• Special reports of recent meetings attended by Society members are summarized for their colleagues. We thank these doctors for their contributions and encourage other physicians to submit reports.

THE SECOND NATIONAL AMA NURSING CONFERENCE

Chicago, April, 1969

The conference emphasized the needs for nurses to expand their roles and physicians to be able to delegate responsibility to other persons, including physician's assistants.

The Conference members discussed:

1. The causes which demand changes in the delivery of health care services,
2. The shifting role of physicians and nurses,
3. The education required to prepare nurses for their changing role,
4. The need to provide the AMA Committee on Nursing with a comprehensive view of what is being done at the state level in the delivery of health care services,
5. The need for encouragement of statewide conferences based on the National AMA Conferences.

There is at present a great need for changing and expanding the traditional roles of physician and nurse. Our changing society demands more medical service and feels that adequate health care is a right and not a privilege. If we are to provide all the services the public really needs, we are going to have to see that different methods of delivery of care are developed.

With the shifting education of nurses from the diploma to associate and BSN programs, better definition is needed of what the nurse can be expected to do with the educational background she has been given. In addition, the role of physician's assistant must be defined. With proper training, nurses can become adequate assistants who can relieve the physician of a great deal of routine duty in pediatric, obstetric and public health care field. We physicians need to develop guidelines for nurses and physician's assistants.

There is a need for a state-wide conference in Delaware to improve patient care through better understanding of what physicians and nurses are each prepared to do. It will certainly help the physicians to know what resources are available through nursing activities. State physician-nurse conferences, which have proved beneficial to the nurses and physicians as well, have been held in several states, including California, Florida, Michigan, Oklahoma, Pennsylvania, Texas and Utah.

The following resolution was passed by the group:

"The AMA should assume a leading role in promoting and strengthening the position of nursing as a professional service. Specific steps should be taken within institutions to include nurses as active members of committees of the medical staff which focus on patient care. (Such committees may include but not be limited to improvement of patient care, utilization, infections control, etc.)"

Henry H. Stroud, M.D.
Liaison Representative from the
Medical Society of Delaware to the
Delaware Nurses' Association

Highlights

• **We invite physicians to send in contributions to Highlights. Members of our Society are urged to send in abstracts of their presentations at recent meetings so that they may be published in the Journal.**

THE NEEDS OF THE AGING IN DELAWARE*

Each author, from a different background or discipline, wrote his thoughts on the subject independently.

The treatment and care of the aged patient seem to be changing or shifting from hospital care to community care. At one time or another, it appeared as though only mental illness came with old age.

Old people are urged to keep up social contacts and remain part of the community, and yet the level of old age assistance in most states makes it impossible for them to have such luxuries as a telephone, proper clothing, and transportation, so that they can be encouraged to socialize with their family and friends.

Efforts by city and state mental health programs to reduce the population of state hospitals by concerted community health programs have not had any direct bearing on reducing the number of aged people in state hospitals regardless of whether they are mentally ill or chronically ill. Where state hospitals have moved to reduce their population, the tendency has been to transfer older patients to nursing homes, and possibly rightfully so.

Harry T. Naydock, Administrator, Delaware Home and Hospital for the Chronically Ill at Smyrna.

Man is a social being who is born into a group such as his family, church, school and his work. As life moves along, these groups change until eventually when retirement comes, many group contacts have disappeared and he is a "loner."

Mrs. Mildred G. Patterson, Executive Director, Wilmington Senior Center.

In Delaware, 886 out of every 1,000 persons over 65 are Social Security beneficiaries — 37,000 out of the 42,000 total. For 75 percent of them, Social Security is either the major source, or the only source, of income.

Even with Social Security, there are some hard figures to consider. In Delaware the average payment for a retired worker is $97.28, $166 for aged couples, and for aged widows, $86. And these are averages; many people receive lower amounts. For example, about 20 percent of all older beneficiaries in Delaware — about 7,500 — get the minimum amount of $55 a month after retirement at 65.

Myron Milbouer, District Manager, Social Security Administration.

The primary purpose of the Department of Public Welfare, as expressed in the laws of the State of Delaware, is to promote the welfare and happiness of all the people of the state, by providing public assistance to all its needy and distressed.

The Department is acutely aware that the assistance grant payment possible is not realistic, the legislative maximum being $100 per

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***Newsletter,* Delaware Commission for the Aging.

month. The Department is also acutely aware that its standard allowances for personal, social and nursing home care for the elderly are very inadequate.

The Board of Welfare, for several years, has been advocating and continues to advocate removal of the legislative maximum grant. The Board of Welfare has approved updated standard allowances recognizing the increased cost of living.

Ronald E. Miller, Director, State Department of Public Welfare.

Here are a few of the needs of Delaware's older persons:

1) Some warm, companionable alternative to the creeping loneliness which every older person feels as the circle of friends and loved ones shrinks painfully with the passing years.

2) A reassuring answer to the anxiety and the insecurity which haunt the later years. The answer must be more than words, though the right words may help. What is needed is an answer built into a way of life which provides a sense of security.

3) Some relationship or activity or interest which will restore meaning to life when the earlier springs of meaning such as work and child rearing have dried up.

4) Adequate care in sickness and the assurance that help is always near at hand in case, "Something should happen to me in the night."

5) A supported environment — in which they feel they are understood and loved. Without this, life may prove not quite worth the living and the blessing of added years may not be a blessing, but much, much less.

The Reverend Milton H. Keene, Director, Methodist Manor House, Seaford, Delaware.

In the realm of health facilities and services, the most prominent needs of Delaware's aged differ, depending on location. In Kent and Sussex Counties a need exists for skilled nursing care beds in nursing homes. At the same time, in New Castle and Sussex Counties a need exists for a facility similar to that of the Home and Hospital for the Chronically Ill. Throughout the State a need exists for intermediate care for these individuals.

In April of 1968, the Health Planning Council published a research project entitled "Nursing Homes — A Projection of Needs for Delaware." In that publication, the Council indicated that Kent County had 103 existing nursing home beds and that it would need 207 by 1970; by 1975, 257; and by 1980, 324. In the same publication, the Council stated that existing skilled nursing care beds in Sussex County totaled 110 and projected the need by 1970 to be 357; by 1975, 357; and by 1980, 416.

In that same publication, the Council recommended "That the State of Delaware expand the Home and Hospital for the Chronically Ill insofar as possible and develop long-range plans to ensure that care is available in similar facilities in New Castle and Sussex Counties." The Council firmly believes that the level of care which is rendered at the Home and Hospital for the Chronically Ill is needed in both northern New Castle County and in Sussex County.

Clifford R. Foster, Executive Director, Health Planning Council, Inc.

There are good nursing homes throughout the state — mostly proprietary and requiring full-paying patients to maintain them. Therein lies the problem. In 1967, in New Castle County, 12% of all households were headed by people over 65 — about half with annual incomes below $4,000.

For admission to state-supported homes, a patient must be virtually on relief. Non-profit homes must reserve their space for those who need constant nursing care.

What about those who need help in dressing and moving about and can no longer handle the daily problems of living alone? What of the elderly who can still care for their own needs but have too little income to maintain a home? What of men who fall ill and find most of the nursing facilities available only to women?

The needs of Delaware's elderly? Homes and care they can afford, and someone to show them where these essentials are to be found.

Mr. R. M. Roberts, Member, Board of Managers, Home of Merciful Rest.

Letters to the Editor

To the Editor:*

The new Terry Children's Psychiatric Center at Fernhook, Delaware, is now accepting referrals of severely disturbed children who may need a residential or day hospital treatment program. During the first year of operation the Center will accept children only between the ages of 3 and 12. Only disturbed children residing in Delaware will be eligible for the services.

All letters of referral should be sent to the Director of the Center, Priscilla A. Keeler, M.D., at Terry Children's Psychiatric Center, Central Avenue, New Castle, Delaware 19720. The referrals should include, in addition to the usual identifying information, the child's birthdate, the basic problem, reason for referring him or her to the Center at this time, and copies of all previous psychiatric, psychological and social work reports.

The evaluation process involves an application interview with a social worker at the Center for both parents of the child, when both are in the family. The child is then seen in evaluation by a psychiatrist and a psychologist. A joint conference is then held with the parents, the psychiatrist, and the social worker during which meeting findings and recommendation for the child are discussed at length.

The Center plans to be ready for operation by September 15 and is most anxious to make these services available to as many seriously disturbed children as possible. During the first year the maximum capacity for residential care will be 19 children and for the day hospital 7 to 9 children. For additional information you may contact the Center by calling 652-3785.

Margaret M. Thomason, ACSW
Psychiatric Social Service Director
Terry Children's Psychiatric Center

See Editorials, page 280

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THE VOLUNTARY AGENCY

Continued from page 269

able known to the consumer so that he can and will improve his own conditions.

This second point brings up another interesting point concerning education: there are others to educate and their education is every bit as important as the education of the indigent. The general public must be convinced that adequate health programs are needed so they in turn will influence their duly elected representatives, their legislators, and the powers in health planning. The voluntary agency can also use its influence to demonstrate the need for health programs and the public's desire for them. In this way, available resources for the various health activities can be used with maximum efficiency and maximum impact.

In our own community, a large segment of the health professions need to be made aware of existing health problems. These various segments need to be kept abreast of the latest knowledge of health needs and the available and needed or potential health services. If the private sector of medicine is kept informed of the needs and goals of such health programs, hopefully, they will join our effort of influencing the proper persons in order to bring them about.

Voluntary health agencies have done all these things in the past, and today they can be even more instrumental in providing health services to all citizens. In order to reach the greater goal of providing the best health care for all of our citizens in the state of Delaware, efforts in this direction must be redoubled. coordinated and combined, even if some individual identity is lost.

Editorials

WELCOME TO THE TERRY CHILDREN'S PSYCHIATRIC CENTER

The opening of the new Terry Children's Psychiatric Center at Fernhook this month marks a major milestone in the development of child care in Delaware. The Center, named in honor of former Governor Charles L. Terry, will be headed by Dr. Priscilla A. Keeler, who comes to Delaware from the University of Alabama.

During the first year of operation, the maximum capacity of the Center will be nineteen children for residential care and seven to nine for day care. Children between three and twelve who reside in Delaware will be eligible, but eventually it is hoped to include adolescent children. Children with all types of emotional problems but particularly those of an acute nature, both psychotic and nonpsychotic, may be accepted.

The philosophy of the Center is best explained in Dr. Keeler's own words. "The treatment program at the Center will be based on a philosophy that has three principal elements. First, the period spent in the Center will in most instances be the child's last opportunity to achieve his full potential or a meaningful portion of it. Second, for most of the children, the core problem from which all of the symptoms arise is a lack of experience with success or with the satisfaction that comes from pleasing others. Third, it must be recognized that the child did not live in a vacuum prior to developing his symptoms nor will he do so on his return. His parents too must learn new ways of living and relating and of experiencing this world which they share with him before any treatment of or improvement by their child would be felt to be meaningful.

". . . There is a very important facet to mental illness in children; in childhood such an illness is not one which is isolated to the child. It is not only the child who creates his difficulties. His parents and the family relationships — those between each parent and the child as well as those between the two parents — all are of utmost importance. If we hope to utilize our service to its fullest extent and to achieve at least in part those goals on which we have set our sights, we will be required to keep this knowledge constantly before us and build our treatment wholeheartedly upon it.

"I believe," says Dr. Keeler, "that child psychiatrists are probably the most fortunate of all psychiatrists, for in our work we are dealing with emotional problems in their earliest stages, when the chances for cure are the greatest. This is true even in the cases of the most seriously disturbed children."

The care of these children in the Terry Center will fill what is currently the most vital gap in Delaware's child health program. We are fortunate in having an impressive array of child care facilities including the Alfred I. duPont Institute, the Child Diagnostic Center, the Child Guidance Center, the Emily Bissell Hospital, the Governor Bacon Center, the School for the Blind, the Speech and Hearing Clinic, the Leach and Bush Schools, day care and Head Start facilities and both city and state health clinics. Altogether they provide a high standard of community care. But we need to continue to strive, particularly in the clinical care of the sick child, to provide equality of care for all economic levels of community life.

It is a great privilege to welcome Dr. Keeler to our community. We promise the Terry Center the enthusiastic support of the entire medical community.

John Maroney, M.D.

THE TUBERCULIN TINE TEST:

Easy, Cheap and Important.

Performance of a tuberculin test has been greatly simplified for several reasons by the development of the tine test. The "tine" test is a sort of thumb-tack gadget with four tiny prongs (tines), which is merely pressed into the cleansed forearm, and does not require, as do the PPD and OT tests, the definite skill of intradermal administration with its attendant nuisance and expense of sterile syringes and needles.

Furthermore, although the reconstituted vial of tuberculin for intradermal testing (which formerly was good for only a day after dilution) now lasts 30 days, the tine test has a very long shelf life. Besides requiring far less skill and no special equipment to administer, it requires no preparation and is thus economical of time as well as money. Boxes of tuberculin tine test are available without charge from the Delaware Tuberculosis and Health Society to any Delaware physician who asks for them.

There are no contraindications to the tuberculin tine test. It does not subject the finicky patient to a needle. At the worst, if he is very sensitive to tuberculin, the patient may develop an unpleasantly marked local reaction at its site, but activation of quiescent lesions by the antigenic stimulus of the administered tuberculin, although theoretically possible, has never been reported.

In the screening of ostensibly healthy persons, those tests should have the highest priority for which an abnormality results in a therapeutic recommendation to the patient. But many of the "abnormalities," which are being detected by the battery of multiphasic screening tests, becoming medically more and more fashionable, are of little or no clinical importance to the patient since at present they result in no therapeutic recommendations. On the other hand, as convincingly presented in this issue by Dr. Gliwa in his laudable article *The Voluntary Agency: Tomorrow's Role*, there are very practical reasons to know that a patient's tuberculin test is positive. If it is, he should receive at least one year's therapy with INH. This prescription will decrease the possibility of recurrent, symptomatic tuberculosis in the patient as well as the probability of his infecting his family or other contacts. *If all positive tuberculin reactors were treated with INH, the incidence of new patients with tuberculosis would decrease to almost zero*, says Dr. Gliwa, a statement of an extravagance rare in clinical medicine.

"I've never seen a positive tuberculin test in my private practice," said a Wilmington pediatrician to me recently when we were discussing this. Well, I've had only one positive Pap smear in over ten years of private practice as an internist, but I continue to prepare a Pap smear whenever I do a pelvic examination. And after reading Dr. Gliwa's convincing presentation, I shall begin to tine test not just youngsters for whom it is required by the public schools and colleges but all my patients.

For if the tuberculin test besides its virtue of simplicity and economy is indeed better than a chest x-ray as a detector of early tuberculosis, what excuse have we not to make it a part of every "routine" examination?

B. Z. P.

ASHES TO ASHES

In Japan, cremation is the rule except for the Imperial family and plots for ashes are so scarce that lotteries are held twice annually by cemetery officials to decide whose ashes will be buried and whose will be stored in depositories or in underground caves. Next year Britain is expected to be the first country to perform more cremations than burials. And in America, paper coffins for use in cremations are now being manufactured by the Container Corp. of America. The coffins, of corrugated paperboard, take the place of more expensive coffins in cremations.

Ashes to Ashes: Japan, G.B., U.S.A.

Deaths

DR. GEORGE V. WOOD

Dr. George V. Wood died on June 13, 1969, at age eighty. Dr. Wood had been in retirement since 1964, and death occurred after a prolonged illness.

Dr. Wood was born in Reidsville, North Carolina. He received his M.D. at the Medical College of Virginia in 1915, and practiced in Virginia and West Virginia before moving to Millsboro, where he did general practice for fifty years. During World War I he served as ship's doctor on two British ships. He was an examining physician for the Selective Service System in World War II, and received citations from Presidents Roosevelt and Truman for his services. He was a member of the AMA, and the Medical Society of Delaware.

He is survived by his widow, Mrs. Gladys Warren Wood; two sons, V. Davis Wood of Missouri, and George V. Wood, III of Wilmington; two daughters, Mrs. O. D. Zacharias of Lewes, and Mrs. Ackworth Phillips of Wilmington, nine grandchildren and three great grandchildren.

DR. LLOYD S. HAYES

Dr. Lloyd S. Hayes, who had been in general practice in Wilmington for twenty-eight years, died on May 8, 1969. Dr. Hayes was born in Morgantown, West Virginia. He received his B.S. degree in 1930 from West Virginia University, and his M.D. in 1932 from the Medical College of Virginia.

Dr. Hayes interned at the then Wilmington General Hospital, practiced in Dover for two years thereafter, then moved to Wilmington. He was on the staff of the Wilmington General Hospital until 1963, when he retired because of illness.

He is survived by his widow, Mrs. Margaret K. Hayes, two brothers, Raymond of Akron, Ohio, and Harold of Connelsville, Pennsylvania, and a sister, Mrs. M. Ethel Grose, of Wilmington.

DR. ISAAC J. MACCOLLUM

Dr. Isaac J. MacCollum, a former president of the Medical Society of Delaware, died at age 79, on December 9, 1968. He was active in both medical and political fields. He began practice in Wyoming in 1916. He was president of the State Board of Health from 1951 until 1952. He was elected president of the State Board of Parole in 1953, and served in this capacity for ten years.

Dr. MacCollum was Lieutenant Governor of the state of Delaware from 1940 to 1944. In 1944 he was the Democratic nominee for governor, but lost the election by a very slim margin. He was also a director of the Wilmington Trust Company and of Wesley Junior College, and was a member of numerous organizations.

He was a native of Fenwick Island. He graduated from West Chester State College in 1910 and from Jefferson Medical College in 1914. There were no immediate survivors at his death.

DR. HELEN E. LANE

Dr. Helen E. Lane died on June 28, 1969, at age 48, following an acute illness. Dr. Lane had been in hospital practice in Wilmington for eight years.

Dr. Lane was a native of Boston, Massachusetts, and received her M.D. from Boston University School of Medicine in 1943, after taking her undergraduate work at the University of Massachusetts. She practiced in Revere, Massachusetts after her resident training and practiced at the Beebe Clinic and Hospital from 1950-1955.

Dr. Lane came to the Delaware Hospital in 1961 as a house physician in internal medicine, limited physically at that time by the prolonged illness which ultimately was fatal. She remained in practice of internal medicine at the Delaware Division until her death.

She is survived by two daughters, and a sister in Massachusetts.

President's Page

RECOMMENDATIONS ON PROPOSED HEALTH LEGISLATION

During the legislative session completed in Dover in June, the Public Laws Committee of the Medical Society of Delaware met long and often to consider and make recommendations on the proposed health and health-related legislation. Following the summer hiatus the Legislature will be reconvening briefly next month, and once again the Public Laws Committee will assume its watchdog stance.

At the July 31st Council meeting the Council approved all recommendations of the Public Laws Committee gleaned from three interim meetings.

The following pending legislation was supported:

1) H. B. 272 providing for minor's consent to "diagnostic and lawful therapeutic procedures, care and treatment for pregnancy or contagious diseases."
2) H. B. 411 relating to consent for care and treatment by a minor living separate and apart from his or her parents or legal guardian.
3) H. B. 267, the Uniform Anatomical Gift Act, provided a satisfactory answer is received as to whether anatomical gifts by living donors should not also be covered.
4) H. S. 1 for H. B. 276, providing immunity for members of the Medical Council, review and censor committees, etc. from suit or liability for action taken as members of such organizations and committees.
5) H. B. 277 providing that advance payments made as an accommodation upon a personal injury claim shall not be construed as an admission of liability.
6) H. B. 278 providing that the statute of limitations shall not begin to run until the date of discovery. The burden of proof rests with plaintiff.
7) H. B. 422, which would raise the ceiling on Aid to Dependent Children in Delaware to compensate for lowered federal contribution to the program.
8) H. B. 369 relating to a Medical Advisory Board for the Motor Vehicle Department consisting of a minimum of three members nominated by the President of the Medical Society of Delaware and appointed by the Commissioner. The Board shall advise the Commissioner on medical criteria and vision standards relating to the licensing of drivers.
9) H. B. 311 relating to salary scales for key executives. This would give the Medical Examiner a higher salary scale.
10) H. B. 421 relating to certificates and state licenses issued to osteopathic physicians.

These pieces of legislation are opposed:

1) S. B. 263 and S. S. 1 for S. B. 263, requiring parental review of sex education material used in public schools. The Senate Substitute bill would allow 25% of the voters in a district to delete any portion of a sex education program they objected to.
2) H. B. 342 and H. B. 343, including care by chiropractors under medical care to the indigent and making chiropractors eligible for compensation for service disability insurance.
3) S. B. 367, requiring the State Board of Health to obtain approval of local users before their water supply could be fluoridated.

I think the members of this committee should be commended for their efforts in behalf of medicine and health in Delaware.

Charles M. Moyer, M.D.

Delaware Academy of General Practice

MORE Q & A ON NEW BOARD FROM RECENT STATE OFFICERS' CONFERENCE

Dr. William R. Willard, Chairman of the AMA's Council on Medical Education, and Dr. Maynard I. Shapiro, AAGP President, were members of a question and answer panel following Dr. Willard's talk on the new certifying board in family practice at the State Officers' Conference, April 20, in Kansas City.

The following questions answered by Dr. Shapiro are a continuation of the presentation in the August issue.

Q. How do we prevent present Academy members from becoming second class citizens?

A. The "boards" in no way interfere with membership in the Academy. Part of the impetus behind our efforts was response to students' desires and demands. It is not anticipated that the bulk of members will take the examination at this time. For the future, there may be a fellowship classification of membership as a place for Board Certified Diplomates within our structure. However, the active members are the Academy and will not be second class citizens.

Q. If we do not continue to train some men as G.P.'s as we have known them, will we not create a great "treatment gap" in the next decade?

A. G.P.'s will be trained by those programs that do not choose to change over at this time. G.P. residencies will continue to be approved — and function. However, even with the change-over, there will be no "gap".

It is hoped that in five years we will see the beginning of a renewal in statistics with the FP specialists increasing and the limited specialists decreasing in numbers — which will gradually approach the ratio needed to establish a true system for the delivery of health care to the public.

Q. Do the six consecutive years of membership in the AAGP and the 300 hours have to be the six years before taking the exam, or can they be some years previously?

A. Membership not required. However, the six years and 300 hours must be those immediately preceding the application.

Q. Is a member who has 300 credit hours eligible for board examination even though he has been a member for five years?

A. If he was in practice one year before his membership.

Q. How do I justify the six year requirement in "certified postgraduate training" to our excellent young G.P.'s who have not been able to afford to join the Academy until they have been in practice for several years? (Please allow our younger physicians a chance to become our new specialists).

A. Academy membership is not required. Six years of practice during which time 300 hours of postgraduate study (acceptable) was completed, all immediately preceding the application.

In Brief

In the News

William Vandervort, M.D., has been reappointed for a three-year term to the Board of Trustees of the Department of Mental Health. He also serves as Secretary-Treasurer of the Board.

Lewis B. Flinn, M.D., has received another four-year term on the Board of Trustees at the Delaware Home and Hospital for the Chronically Ill at Smyrna.

Physician members of the Board of Trustees of the new Delaware Institute of Medical Education and Research are G. Barrett Heckler, M.D., appointed by the Wilmington Medical Center, and Judith Tobin, M.D., and Pierre L. LeRoy, M.D., appointed by Governor Russell W. Peterson.

Otakar J. Pollak, M.D., pathologist at Kent General Hospital, was presented an award by the American Association of Blood Banks, "for maintaining or exceeding" the standard of blood bank performance and for the high quantity of blood along with methods in maintaining the laboratory.

Speakers on "Ask the Doctor"

Speakers for October, 1969 on the Tuesday radio program, (11:05 a.m. WDEL) produced by the Medical Society of Delaware are: October 7, Charles S. Riegel, M.D., *Fatigue:* October 14, Leo B. Hogan, M.D., *Antibiotics and Infectious Diseases*; October 21, Mark Cohen, M.D., *Risk Factors in Heart Disease;* October 28, Conley L. Edwards, M.D., *Varicose Veins.*

Fluoridation Law Holds Firm

The legality of Delaware's flouridation law was underlined recently as the state's Attorney General ruled that Delaware's law was mandatory in nature. Regulations for implementing flouridation in Delaware by 1971 were approved shortly after Attorney General David P. Buckson ruled that the law would allow no exemptions or referendums. The deadline was later extended to 1973 to provide more time for the Board of Health to educate the public on fluoridation. Some 37 communities would be affected by the law requiring fluoridation of all water supplies serving 1,000 or more. The legislation will be implemented under the direction of Dr. Donald Cowan, State Dental Director. Only five communities had fluoridation before the law was enacted.

US Public Health Service Pamphlets

The US PHS publishes a lot of pamphlets, so many that the current listing of just those in the *Vital Health and Statistics* Series is a three page brochure itself. What's available? Quite a variety. For example, *Trends in Illegitimacy in the US, 1840-1895.* Also, *Episodes and Duration of Hospitalization in the Last Year of Life*, *Homicide in the United States*, and *Serum Cholesterol of Adults, United States. Recent Mortality Trends in Chile* is another and so is *Interview Responses on Health Insurance Compared with Health Insurance Records.* Single copies of any are free and the complete list can be obtained from the Office of Information, National Center for Health Statistics, Public Health Service, Health Services and Mental Health Administration, US Dept. of Health, Education, and Welfare, Washington, D.C. 20201.

The Month in Washington

The Oral Contraceptive Question

An FDA advisory committee found oral contraceptives to be "safe," but reported that British and U.S. studies had established an" etiologic relation between thrombo-embolic disorders" and their use.

The Advisory Committee on Obstetrics and Gynecology said that their benefits out-weighed the risks sufficiently to designate them "safe" within the intent of the federal law.

Although no conclusion could be drawn at this time as to the potential of oral contraceptives, the committee called for intensive research along three lines: 1) possible relationship of hormonal contraceptives and carcinoma of the breast and uterus; 2) determination of the basis and prognosis of metabolic alterations produced by hormonal contraceptives; and 3) development of new methods of contraception.

The committee, in its initial report three years ago, approved of oral contraceptives with reservations.

The report concluded: "When these potential hazards and the value of the drugs are balanced, the committee finds the ratio of benefits to risk sufficiently high to justify the designation safe within the intent of the legislation (*Kefauver-Harris Amendments of 1962*)."

The effectiveness of oral contraceptives was found to be significantly higher than for intrauterine devices or traditional methods.

U.S. Schools of Medicine

The federal government has started a program designed to increase enrollment in the nation's schools of medicine and osteopathy by 4,000 over the next four years.

Known as the *Physician Augmentation Program*, the activity, under the Department of HEW, supports the addition of 1,000 first year places commencing with the fall term of 1970. These places are in addition to any increase to which the schools have already committed themselves.

CLINICAL NOTICES AND MEETINGS

Industrial Nurses Association

The Delaware Industrial Nurses Association will hold its Third Annual Educational Health Conference on Saturday, October 4, at the DuPont Country Club from 8:00 a.m. to 4:00 p.m.

Disease Detection Symposium

An international symposium on early disease detection will be held in Elkhart, Indiana, October 6. Registration is open to all physicians, without fee. Registration forms can be obtained from DDib, 3553 W. Peterson Avenue, Chicago, Illinois, 60645.

Delaware Academy of General Practice

The Delaware Academy of General Practice announces a seminar on Sex Education and School Health, Saturday, October 11 at the Academy of Medicine, Wilmington.

Maryland and D.C. Internists

Specialists in internal medicine in Maryland and Washington, D.C. will hold a scientific meeting at Johns Hopkins Hospital, Baltimore, Md., October 11. For information contact: Martin L. Singewald, M.D., 11 E. Chase Street, Baltimore, Maryland.

American College of Gastroenterology

The American College of Gastroenterology announces that its Annual Course in Postgraduate Gastroenterology will be given at the Rice Hotel in Houston, Texas, October 23-25. For further information write to the American College of Gastroenterology, 299 Broadway, New York, N.Y., 10007.

American Academy of Pediatrics

The 38th annual meeting of the American Academy of Pediatrics will be held in Chicago, October 18-23. For information write: American Academy of Pediatrics, Department of Public Information, 1801 Hinman Avenue, Evanston, Illinois, 60204.

American Society of Anesthesiology

The Annual Session of the American Society of Anesthesiologists will meet in San Francisco, October 25-29. For information write: ASA Headquarters, 515 Busse Highway, Park Ridge, Illinois, 60068.

ACP Courses

The American College of Physicians will present the following courses: *Office Psychiatry for Internists,* October 27-31 in Boston, *Mechanisms of Disease and Modern Therapy,* November 3-7 in Chicago, and *Nuclear Medicine,* November 3-7 in Ann Arbor, Michigan. For information write: Edward C. Rosenow, Jr., M.D., Executive Director, American College of Physicians, 4200 Pine Street, Philadelphia, Pa., 19104.

PG Course

The Department of Otolaryngology of the Illinois Eye and Ear Infirmary and the College of Medicine, University of Illinois, will conduct a postgraduate course in Laryngology and Bronchoesophagology November 3-14. If interested write: Department of Otolaryngology, College of Medicine, University of Illinois at the Medical Center, Post Office Box 6998, Chicago, Illinois, 60680.

American Society of Anesthesiology

The American Society of Anesthesiology will sponsor a conference on Respiratory Therapy, November 9-12, at the Statler Hilton Hotel, Boston. For information write: ASA Headquarters, 515 Busse Highway, Park Ridge, Illinois, 60068.

Industrial Nursing Course

A course in *Occupational Health for Nurses* will be given November 10-14, 1969, by the American Association of Industrial Nurses at the New York University Medical Center. Tuition will be $175. For details, write: Office of the Recorder, New York University Postgraduate Medical School, 550 First Avenue, New York, N.Y. 10016.

Rehabilitation Medicine

New York University Medical Center, Department of Rehabilitation Medicine will offer a full-time course on *Clinical Electrodiagnosis of Neuromuscular Diseases,* November 11-14. For information write: Joseph Goodgold, M.D., Institute of Rehabilitation Medicine Research Pavilion, New York University Medical Center, 400 East 34th Street, New York 10016.

Postgraduate Medical Education

The Third Annual Postgraduate Conference, *Today's Hospital Problems,* a leadership course for Chiefs of Staff, Hospital Directors and Governing Personnel will be held November 12-15 at the Tides Hotel, Redington Beach, Florida. For further information write to: Postgraduate Medical Education, Mound Park Hospital Foundation, St. Petersburg, Florida, 33701.

Heart Scientific Sessions

The 1969 Scientific Sessions of the American Heart Association will cover a four day period from November 13-16 in the Dallas, Texas, Memorial Auditorium. Registration forms may be obtained from the Delaware Heart Association, Suite 60, Independence Mall, Wilmington, Delaware, 19803.

Correlative Neuroradiology

New York University Postgraduate Medical School announces a postgraduate course in *Neuroradiology with Clinical and Pathological Correlation* to be held November 17-21. For detailed brochure write: Office of the Recorder, New York University Postgraduate Medical School, 550 First Avenue, New York, N. Y., 10016.

Postgraduate Programs

The Division of Maternal and Child Health of the University of California School of Public Health at Berkeley announces postgraduate programs for physicians interested in receiving training in the field of *Maternal and Child Health.* Applications are now being accepted for the group entering in July or September, 1970. For information write: Helen M. Wallace, M.D., School of Public Health, University of California, Berkeley, California, 94720.

Medical Seminar Cruise

The Albany Medical College will conduct its eleventh Medical Seminar Cruise, January 5-22, 1970. Ports of call include Virgin Islands, Martinique, Barbados, Trinidad, Venezuela, Netherlands Antilles, Dominican Republic and Haiti. The comprehensive shipboard postgraduate program will cover subjects in medicine, surgery, pediatrics, obstetrics and gynecology. For information write: Department of Postgraduate Medicine, Albany Medical College, Albany, New York, 12208.

The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

AMPICILLIN — Resistant Salmonella

An asymptomatic salmonella carrier was started on oral ampicillin, 500 mg. four times a day. (Ampicillin has been recommended in treatment of chronic salmonella carriers who do not have gallbladder disease.) Four days later the patient developed severe diarrhea which, after two days, became grossly bloody. The patient was hospitalized. The infecting organism (identified as Salmonella typhimurium) was found to be resistant to ampicillin but sensitive to chloramphenicol. Treatment with the latter antibiotic was successful and the patient was discharged from hospital on the 8th day. In this case the administration of ampicillin apparently led to suppression of the normal intestinal flora with unrestrained growth of ampicillin-resistant salmonella. Such complications might be avoided by pretreatment determination of the antibacterial sensitivity of the infecting organism. It should be noted that ampicillin-resistant strains of salmonella are commonly encountered.

Rosenthal, S. L. (Upstate Med. Cent., St. Univ., N. Y., Syracuse). NEJM 280:147 (Jan. 16), 1969.

TETANUS TOXOID — Emergency Boosters

Public health authorities currently recommend that a booster injection of tetanus toxoid be given if injury occurs more than one year after primary immunization or last booster dose. Accordingly, many physicians give a reinforcing dose of tetanus toxoid whenever the patient suffers a break in the skin, which, in the case of children, may occur with considerable regularity. In addition, colleges, secondary and elementary schools and camps commonly insist on booster tetanus immunization within six months to one year before admission. Studies conducted by the present authors show that the interval of protection after four or more injections of tetanus toxoid exceeds 12 years. They suggest that in properly immunized persons, special tetanus booster injections on admission to schools, colleges and camps and emergency injections at the time of injury be abandoned. The following basic schedule is proposed:

Three injections of Diphtheria-Tetanus-Pertussis Vaccine given no less than one month apart in infants, with a booster injection about one year later and another on entering school. Subsequent Diphtheria-Tetanus boosters should be administered at intervals of about 10 years. "If such a schedule is followed and reliable records are available to physicians responsible for care, there will usually be no need for any other tetanus boosters, and the risk of toxoid reactions will be minimized."

(The duration of the actively immune state is an important question which sharply divides expert opinion on tetanus prophylaxis and as a result confuses the practicing physician. Clinicians must also consider what is safest for themselves from a legal point of view.

Peebles, T. C. et al (906 Warren Bldg., Mass. Gen. Hosp., Boston. NEJM 280:575 March, 1969.

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Delaware Medical Journal

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LSD INGESTION

A Review with Four Case Reports

• The ingestion and subsequent intoxication of young adults to lysergic acid diethylamide (LSD) is a potential diagnostic and management problem in Delaware. The experience within our own State is outlined along with a review of this problem in the United States.

Augusto A. Amurao, M.D.
William H. Duncan, M.D.

Lysergic acid diethylamide, better known as LSD or "acid," belongs to the group of amine alkaloids similar to ergonovine. It is not an approved drug for human ingestion and its use is presently classified as experimental. While it has an oxytoxic action, the major effects of the drug are almost entirely upon the central nervous system (CNS). In animals doses that affect the CNS in man cause only a small response that can be attributed to action of the drug. Studies have shown that it has very little vasoconstrictor effect. There have been increasing reports that it can also cause chromosomal defects.

LSD was discovered in 1939 by Stoll and Hoffmann, but it was not until April, 1943 that the psychotogenic effect of the drug was demonstrated by Stoll. He demonstrated that doses of about 30 mcg LSD administered by mouth to normal individuals produce a psychotic effect and autonomic changes.[1] Others have shown that as little as 20-25 mcg can produce effects in susceptible individuals. The acute intravenous LD-50 varies widely with different species, and toxicologists say these doses are greatly in excess of the amounts which produce psychotogenic effects in man.[2] In some psychiatric centers the drug has been used experimentally in research and psychotherapy, but it has not gone beyond this stage in ethical medical practice. It has also been reported that there are no natural and other semi-synthetic ergot alkaloids containing a lysergic acid moiety that exhibit as high an activity as LSD.[1] While a number of other drugs capable of producing psychotic reactions have been discovered, LSD remains the most potent psychotogen.[1]

Lysergic acid diethylamide or its derivatives are said to be found in morning glory (*Rivea Corymbosa*) seeds, and preparations of these have been taken by thrill seekers. At present there appears to be a growing underworld traffic in LSD and similar drugs.[2] LSD in doses of 20 mcg/kg will produce psychic disturbances and may have permanent chromosomal sequellae. The subjective effects of LSD are bizarre and very variable depending

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Dr. Amurao is Chief Emergency Room Physician, and Dr. Duncan is Director of Ambulatory Services, Wilmington Medical Center.

upon the individual. Marked changes in mood have been observed. The individual becomes quite emotional; he may laugh or cry with slight provocation. Some persons become euphoric or dysphoric. Perceptual changes constitute the most dramatic effects of the drug. They are usually reported as visual or tactile in nature and consist of either distortions or hallucinations. Auditory manifestations, on the other hand, are rare in contrast to the high incidence of auditory hallucinations in naturally occurring psychoses such as schizophrenia. Complete loss of reality and total withdrawal have been manifested.

Tolerance Develops

Tolerance develops to the psychic disturbances, but physical addiction has not been recognized. In higher doses or acute poisoning, autonomic and somatic symptoms appear. Mydriasis, tinnitus, piloerection, hyper-reflexia, hypertension, hyperthermia, and even ataxic or spastic paresis have been seen. Death can occur from respiratory failure.[2] Lately, the teratogenic effect of LSD has been reported as a newly recognized complication.[3,4] Three studies on leukocytes showed chromosomal abnormalities in approximately 75% of patients, but two other studies did not show this effect.[5,6,7,8,9] Nevertheless, the conclusion in three of four studies on experimental animals was that small amounts of LSD resulted in embryologic defects or stillbirth, as cited by Louria of Cornell University Medical College.[10] In addition, in June 1969 a case report from the Genetic and Endocrine Unit of the State University Medical Center in New York of a baby born with a congenital defect thought secondary to LSD was published in Lancet. There are also two studies which show that LSD results in genetic defects in reproductive tissues in experimental animals.[10,11,12]

Many attempts have been made to localize the site of action of LSD in the central nervous system. Gaddam, Woollety & Shaw in 1954 demonstrated that LSD is a powerful antagonist of 5-hydroxytryptamine (5-HT) in vitro and suggested that this blocking property might have an important effect in the brain. However, it was shown later that there is no parallelism between the ability of the congeners of LSD to produce psychological changes and blocking activity against 5-HT.

Further Effects

It has been demonstrated that, like other stimulants, LSD increases low voltage and fast activity of EEG in rabbits and sometimes in man. In 1953, Bradley and his co-workers found that LSD sensitized the reticular system to respond to sensory stimuli.[13,1] Evarts four years later found that larger doses of LSD could selectively depress transmission in the lateral geniculate nuclei. It was also discovered that axone-dendritic cortical synapses could be inhibited and axosomatic synapses facilitated by LSD.[1] LSD is rapidly absorbed from the gastrointestinal system and is distributed widely in the body. Distribution studies using C^{14} tagged LSD have shown that it is concentrated and excreted by the liver in the form of 2 oxy-lysergic acid diethylamide.[14] The most effective antagonists to both the psychic and autonomic effects of LSD are chlorpromazine or other phenothiazine derivatives, but in the late stages of poisoning, only supportive care can be offered.

Lysergic acid diethylamide has become part of the armamentarium of many young individuals who are dedicated to exploring their own feelings in various drug states. The most famous hangout area for such exploration has been the Haight-Ashbury district of San Francisco, also called the "Mecca of Hippiedom." In the summer of 1967 about 30,000 young people invaded this area to experiment with drugs. Alen and West, who made a study of this group, said that many youngsters flocked to the area as "seekers of truth," "moochers" and "lovers," and only a fraction were reported as real "hippies." Most of them were runaways called "acidheads" or "speed freaks." The group called marihuana the "glue" and LSD the "sacrament." Drugs had become to them potions of escape and utopia. Some hippies felt the effects of "acid" (LSD) to be beneficial. There were reports of infants and toddlers being given LSD allegedly to protect them against "hang-ups of the world."[15,16,17]

The primary sources of clinical experience with LSD are the Bellevue Psychiatric Hospital in New York and the Los Angeles County Hospital. Bellevue reports three types of adverse reactions: (1) acute panic reaction, (2) recurrence of symptoms in periods of abstinence after multiple ingestion, and (3) prolonged psychosis.[18] Los Angeles County reports symptoms ranging from acute depression to psychosis. A recently published article from Los Angeles reports over 2,000 adverse reactions in the 18-month period from July 1, 1966, to January 1, 1968. There were no confirmed deaths directly attributed to LSD, but reports of successful suicides and serious accidents as well as homicides were received.[16]

Considering the apparent extensive abuse of this drug in other communities, the natural question arose, what about our own? To determine the incidence of LSD use in Delaware, a survey was made: all general hospitals in the state were queried about inpatient and outpatient diagnosis of LSD intoxication during the period January 1, 1967, to June 30, 1969. The result of this survey indicated no inpatient cases of LSD intoxication. Except at the Delaware Division of the Wilmington Medical Center there were no outpatient records of any definite suspected, or possible, cases of LSD ingestion. The Delaware Division reported four emergency room patients with LSD intoxication, all of whom were listed as either suspected or possible. One of these cases was in July, 1968; the other three were reported in January, May, and June, 1969. It is noteworthy that all of the cases identified were male. Their ages were fourteen, fifteen, seventeen, and twenty-one. Each of the patients lived in the section of our community known as Brandywine Hundred.

Case reports of these four suspected LSD ingestions follow.

Case No. 1

The patient was a fifteen-year-old boy who had left home three months before to perform in a "hippie band." He had the typical long-haired hippie appearance and was unkept and irresponsible. He was brought to the Emergency Room by his friends, who became concerned with his behavior, for he was walking in the streets with complete disregard to traffic. During the period of observation in the Emergency Services, he continually hallucinated. He heard voices telling him to do certain things, and he described seeing individuals with their heads disengaged from their bodies and their limbs displaced. He received heavy sedation with chlorpromazine, 50 mg repeated at intervals when needed, and upon awakening the next morning he appeared to be all right. He was then described as being very outgoing, smooth talking, and a "charming young man." But in regard to the latter he had an inclination to steal. More than once he was caught entering different off-limit areas of the Emergency Services, and articles belonging to others were discovered in his room. He was released to juvenile police authorities.

Case No. 2

The patient, a twenty-one-year-old man, was brought to the Delaware Division by ambulance under police escort, charged with indecent exposure and disorderly conduct. The patient had been in the custody of the police for an undetermined period of time. On admission he readily admitted that he had been taking LSD regularly. He was alert, but extremely belligerent and uncooperative. Physical examination was normal. He was sedated with 50 mg chlorpromazine and awoke fully alert and calm some six hours later, at which time he was turned over to the appropriate police agency. The police report indicated that this patient while in their custody had apparently been hallucinating and "living in a different world."

Case No. 3

A fourteen-year-old boy was brought to the Emergency Services by his family for the express purpose of determining if he was taking drugs. Their chief complaint was that this boy did not seem to be himself. Physical examination was performed and found to be normal. Barbiturate levels were negative, and other laboratory studies were within normal limits. An interview with the parents indicated some hallucinatory actions and breaks with reality for short periods of time just before this visit and at other times.

Case No. 4

A seventeen-year-old boy was brought to the Emergency Services by a young girl friend who stated that the patient was "on a trip." She further stated that he had taken a "peace pill," and had been known to take drugs before. This was the third time she had seen the patient disoriented. His attempt at behavior she considered sexual perversion had led her to call an ambulance and seek medical attention for him. She stated he was not acting in a "real manner." The patient was sedated with 50 mg of chlorpromazine and on awakening several hours later appeared to be oriented and normal.

Treatment of LSD Intoxication

The recommended treatment for LSD ingestion consists of inducing emesis or gastric lavage if the drug has been taken recently. For the acute phase, close observation with symptomatic and supportive therapy is all that can be offered. Chlorpromazine is recommended as the most effective drug to control the psychic and autonomic effects of LSD, but other phenothiazine derivatives have been used satisfactorily. As follow-up care, almost all patients will need psychiatric help.

Summary

This paper has sought to bring to the attention of the Delaware medical community the existence of lysergic acid diethylamide (LSD) in the community. The possible signs and symptoms of LSD ingestion, including case reports of four suspected local reactions, have been reported. We wish to bring to the attention of our medical community that this drug is available in our neighborhood and consideration of LSD ingestion should be made in cases of hallucinatory, or psychotic behavior, especially in young people. The present suggested treatment of LSD ingestion is outlined.

Additional Case Reported

Since the preparation of this paper, a 17-year-old boy from the same Brandywine Hundred area as the cases cited was treated in the Beebe Hospital, Lewes, for a "bummer" or "bad trip" resulting from the ingestion of an LSD drug known as "pink fink." During his marked delirium, he exhibited infantile regression, requesting that his mother change his diapers among other things. The police in charge of investigating the source of this drug report that in addition to "pink fink," there are other drug varieties available referred to as "green slime," "purple drops," "pink squirrel," and "chocolate drops," which are all combinations of LSD with "who knows what?"

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GOD SAVE THE BIRDS

Half the modern drugs could well be thrown out the window, except that the birds might eat them.

Oliver Wendell Holmes.

RUBELLA VIRUS VACCINE:
Recommendation of the Public Health Service Advisory Committee on Immunization Practices

• Rubella virus vaccine is now available. These recommendations for its use were developed in close cooperation with and are endorsed by the Committee on the Control of Infectious Diseases, American Academy of Pediatrics.

Edward F. Gliwa, M.D.

Rubella, a mild exanthematous illness which most individuals acquire during childhood, represents a direct hazard to the fetus during its early months of development. It is the prevention of fetal infection that is the primary aim of the new rubella virus vaccine, the first suitable method of effectively controlling this disease.

The risk of the attenuated virus used in the vaccine on the fetus in unknown, and for that reason the rubella vaccine is contraindicated for pregnant women or those who might have early unknown pregnancies. Since the vaccine is safe for children but not for sexually mature females, rubella control is thought to be best brought about by the eliminating of the transmission of virus among children, the primary source of rubella for pregnant women.

Rubella is a common childhood exanthem, often occurring sub-clinically and rarely demonstrating complications. The possibility of inapparent infection and the variety of other mild exanthems which exhibit manifestations similar to rubella place doubt on the reliability of clinical history. The only reliable evidence of immunity is a positive serological test from a competent laboratory regularly performing these examinations. At the present time, the hemagglutination-inhibition determination is the most useful method of determining immunity.

The Vaccine

The rubella live virus vaccine, prepared in cell culture of avian or mammalian tissues, is administered in a single subcutaneous injection. It produces some virus shedding from the pharynx for two weeks or more after injection, but no clear evidence of communicability has been demonstrated. Approximately 95 percent of the vaccinees develop antibodies, the titers of which are lower than naturally acquired illness, but which have been sufficient to prevent infection under natural exposure or artificial challenge. Antibody levels have persisted with little decline for three years in a study group, so long-term protection is presumed likely, but can be definitely determined only by continued observation.

Thirty thousand susceptible children received the vaccine in field trials with virtually no untoward reactions. Many adult women, however, have had lymphadenopathy, arthralgia, and transient arthritis beginning from two to four weeks after vaccination. Rash and

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Dr. Gliwa is Deputy State Health Officer, Delaware State Board of Health.

fever occurred, but less commonly, and so few men have received the vaccine that no significant data are available.

Recommendations for Vaccine Use

The advisory committee recommends the rubella vaccine be given to children between the ages of one and puberty. The vaccination of younger children should be deferred till after one year because of the possibility of interfering maternal antibodies. As mentioned before, the initial priority should be placed in kindergarteners and children in the early years of grade school as they serve as the major source of most rubella outbreaks; and histories of clinical rubella are not usually reliable enough to exclude a child from immunization.

Warning

Under no circumstances should pregnant women receive the vaccine. Therefore routine immunization of adolescent girls and adult women should not be undertaken because of the danger of inadvertently administering the vaccine before a pregnancy has become evident.

Only when the possibility of pregnancy is essentially nonexistent should vaccine administration be considered. The two reasons for this are: 1) the theoretical risk of vaccination after pregnancy, and 2) the fact that significant congenital anomalies occur after approximately three percent of all births, and the possibility of their appearance after rubella immunization could lead to misrepresentation of such an occurrence.

The committee further states:

"If vaccination of a woman of child-bearing age is contemplated, the following steps are indicated:

1. Optimally, the woman should be tested for susceptibility to rubella by the HI test.
2. If immune, she should be assured that vaccination is unnecessary.
3. If susceptible, she may be vaccinated only if she understands that it is imperative for her to avoid becoming pregnant for the following two months. (To ensure this, a medically acceptable method for pregnancy prevention should be followed. This precaution also applies to women in the immediate postpartum period.) Additionally, she should be informed of the frequent occurrence of self-limited arthralgia and possible arthritis beginning two to four weeks after vaccination."

There is no contraindication to giving the vaccine to a child already exposed. For women, the previously listed concepts apply.

Contraindications to using the rubella vaccine include pregnancy; altered immune states such as occur with leukemia, lymphoma, or generalized malignancy, or lowered resistance due to therapy with steroid, alkylating drugs, antimetabolities, or radiation; severe febrile illness; hypersensitivity to vaccine components; (since the vaccine is produced in all culture, care should be exercised in administering the vaccine to persons with known hypersensitivity to the species from which the cells were derived. This species can be determined by checking the labeling. The vaccine contains a very small amount of neomycin and sensitivity to this drug should also contraindicate the vaccine.)

Simultaneous administration of other live virus vaccines such as Sabin vaccine or measles vaccine should be deferred for at least one month until results of studies on such tandem use are known.

Special Surveillance Needed

In closing their recommendation, the advisory committee urges special surveillance on rubella. In particular, emphasis should be placed on accurate diagnosis and reporting of rubella, the congenital rubella syndromes and complications of the disease. Competent laboratory investigation of all infants with birth defects suspected of being due to rubella is essential. It will likewise be important to observe patterns of vaccine use and determine their effectiveness. In Delaware, as pointed out by Dr. Middleton (Del. Med. Journal, 41:225, 1969), children are now being found in the first grade who have damaged hearing on the basis of probable congenital rubella acquired during the epidemic of 1963-1964. It is our hope that similar defects can be prevented by rubella vaccine.

INDUSTRY AND MENTAL ILLNESS

• Industry is coming of age in certain areas where corporations are utilizing psychiatric insights in the management of their personnel. Tensions and pressures on and off the job are now more readily recognized as contributing to the overall efficiency of the employee.

Albert L. Ingram, Jr., M.D.

In recent years there have been encouraging signs which indicate steps are being taken to use psychiatry in industry. And there seems to be increasing awareness of the role emotional and mental illness plays in absenteeism and poor work performance. However, to quote the director of a private psychiatric hospital in Connecticut, "Too many corporations are realistic about physical problems but still have little understanding of emotional illness created by the very pressures they create in the executive suites."

What are some of these pressures and tensions which are associated with job situations and which so often seem to be a creation of the corporation enviornment? For purposes of clarification it should be clearly stated that whatever the problem-producing areas peculiar to the industrial setting, the basic fact remains that worker and executive alike take to the job their own inner conflicts which cause them to react in a certain fashion to external industrial stress. It has been repeatedly estimated that one out of eight or ten people in industry has some problem with his emotions which influences his work significantly. These are personal, internal problems which run the gamut of variety as in any other specific setting, and the results are usually emotional illnesses or symptoms of emotional illness.

Areas of Conflict

Externally, these stresses follow fairly uniform patterns and vary little from corporation to corporation. By and large, associated with corporations will be found three major areas with great potential for problems within the individual: first, conflicts about promotion; second, conflicts associated with aging; and finally, conflicts between family and career.

The problem surrounding promotion is a two-edged sword. On the one hand, competition for promotion to a specific supervisory level can, of itself, engender anxiety and conflict. In many instances the conflict is resolved once the advancement is won. On the other hand, many individuals experience even greater conflict and stress once the job is secured. They may feel inadequate for the new responsibility. Now that they are in a supervisory position there may be real or imagined conflict in dealing with former colleagues or with those who are older. In addition, they may very much feel the isolation which is an inevitable concomitant of moving up to the next rung of the ladder. Very frequently success, for the first time, faces the individual with his own limitations, and this can have rather devastating emotional effects.

More obvious stress occurs when a person fails to gain a promotion he has not only fought for but which he feels he richly deserves. Again, the unrealism involved in looking at his own capabilities or lack of them becomes a very large factor in producing emo-

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Dr. Ingram is Commissioner of Mental Health for Delaware.

This paper was presented at a meeting of the Society for the Advancement of Management.

tional or mental symptoms. Perhaps he is indeed inadequate to the job, and this is the only reason he failed to attain it. However, if he was awarded the position but subsequently proved incapable of managing it, then management itself has some responsibility for the resultant unhappy situation.

When we consider conflicts associated with age or aging, we confront a special area with unique problems. It is fairly well agreed upon that by the time the male in industry has reached middle age he has made, or has been thrust into, his own particular niche. In the late forties and early fifties there are more years of production behind him than ahead of him. Usually by then he has realized his goals, or at least part of them — the goals and the roles he saw himself in some twenty years ago. If he has not, he must then settle for the reality of his accomplishments, like it or not.

Transitional Periods

Many men can accept the reality of their situations and are able to achieve a sense of stability and pride in the marks they have made along the way. But some men have very real problems with this transitional period and sustain many psychological scars. They react poorly to the fact that their circle of friends begins narrowing. They become more sensitive to the concept of dying, and they begin to feel less and less adequate in almost all phases of their living. There is also less physical energy, and sporadic exercise serves only to remind them of lost or diminished physical prowess. In addition there is often fear and anxiety concerning sexual capabilities. These anxieties although most often unfounded can be very real to the individual entertaining such doubts.

If we look closely at the conflict area involving career and family, we have to concede that a great number of these conflicts arise in the home and then spill over into the work situation. However, it is not true as is so often heard that 95 per cent of job conflicts are due to conflicts at home. People take to the job their own inner anxieties and concerns. Conversely, they bring to the home and family the results of some of the anxieties, doubts and fears they encounter at work. Thus there is a definite interrelationship between career and family tensions, which renders somewhat less than accurate the old concept that forcing the employee to solve family problems will result in solving job conflicts.

Trouble Spots

There are several trouble spots to be observed in this career-family confrontation. Inordinate striving on the part of the young executive frequently results in various forms of serious resentments on the part of the wife. Almost universally she feels life to be more exciting for her husband: he is meeting stimulating people and solving grave problems while she becomes a baby sitter, a taxi driver, an ambulance driver and a minor officer in the local parent-teacher association. There are often business trips for the husband which increase the burden and the chores for the wife who must remain at home.

And not at all infrequently does management policy contribute to and, indeed, exaggerate these differences. Some corporations behave as though a man's family doesn't exist at all when they demand that a man literally sacrifice his family to the company, or when they cause disruption by frequent moves which are unnecessary, or when after-hours working is made the rule rather than the exception. The executive who functions best is the man who has achieved the best possible balance between his career and his family life. Far too many have given all for career only to find they have lost their families on the way up.

What techniques and insights are there for the individual to deal with his own reactions to job stresses? We are constantly providing our own emotional first aid for our own mental and emotional health. We all have built-in mechanisms which we constantly use to combat anxiety, such use being largely on an unconscious basis. We all rationalize our actions and reactions, we all project blame on people or events, and we all identify with causes or groups or persons. These mental mechanisms are protective of the mental and emotional economy of the individual.

Continued on page 301

PRIMARY PULMONARY ACTINOMYCOSIS

A Case Report

• Deep fungal infections are now gaining more attention in the medical literature. The following is a case of a potentially serious infection in a previously healthy person.

Robert B. Brereton, M.D.

Two genera of the family Actinomycetacae *(Actinomycetes* and *Nocardia)* have long been recognized to be important medically. This report deals with a case which we believe to be primary pulmonary actinomycosis, a disease not often diagnosed in the spectrum of pulmonary diseases seen today.

Case Report

The patient, a 34-year-old white man, was admitted to the medical service of the Delaware Division on the evening of January 15, 1969, because of dyspnea, chest pain, and a suspected left pleural effusion. He had developed transient pleuritic left chest pain about four days prior to admission, which disappeared spontaneously a few hours later. Along with dyspnea the pain reappeared the morning of the day of admission. Prior to this time the patient's health had been good, and he denied any previous pulmonary disease. Six weeks prior to admission he had had a dental extraction and apparently had made an uneventful recovery. His past medical history and family history were non-contributory. There was no history of diabetes mellitus. He had been employed as a dry-wall installer and was able to work until the day of admission. He denied excessive use of tobacco but had consumed large amounts of beer since his early twenties. Recent alcohol intoxication or unconscious episodes were denied. Physical examination revealed the patient to be in moderate distress because of his dyspnea and chest pain. He was not cyanotic and was alert and cooperative. The oral cavity revealed marked calculus deposits on his teeth. No masses, tender areas, or abnormal lymph nodes were detected in the cervicofacial area. Examination of the chest revealed dullness to percussion, decreased breath sounds, and a loss of vocal and tactile fremitus of the lower one-half of the left lung field. There were no tenderness or abnormal skin changes of the chest wall. The rest of the physical examination was unremarkable. Laboratory data revealed hemoglobin to be 11.2gm/100 ml. Red blood count was 3.6 million and white blood count 15,000/cu mm with 73% polymorphonuclears, 8% band forms, 12% lymphocytes, and 7% monocytes. Urinalysis, blood urea, blood sugar, bilirubin, SGOT, alkaline phosphatase, plasma protein electrophoreses, uric acid, VDRL, and LE preps were all normal. A chest x-ray revealed an opacity probably due to a large pleural effusion. (Figure 1)

Dr. Brereton, formerly Senior Medical Resident in the Department of Medicine, Wilmington Medical Center, is now serving in the U. S. Army.

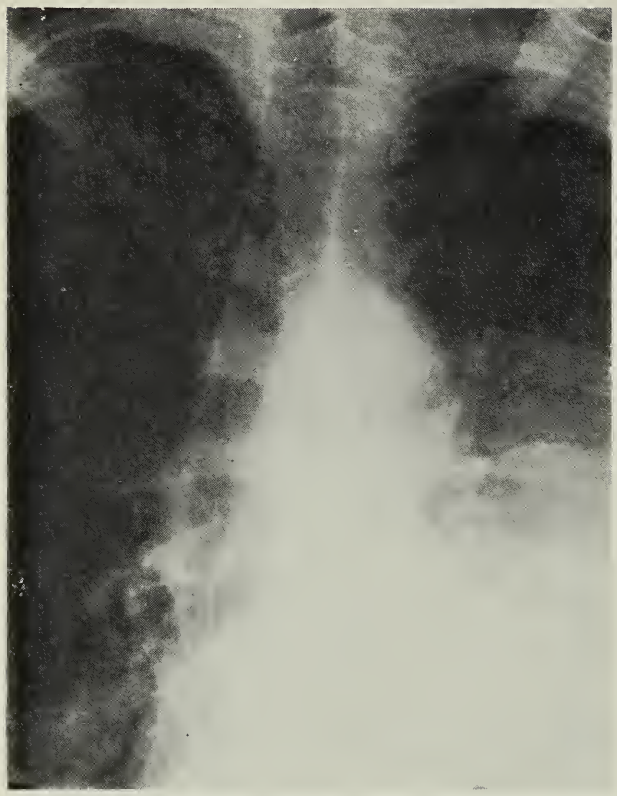

Figure 1
Admission chest x-ray showing left pleural effusion and possible parenchymal changes.

Hospital Course

Thoracentesis was performed the morning after admission revealing a cloudy exudate with a white cell count of 28,000 (95% polymorphonuclears). Gram stain showed Gram positive, long, filamentous branching rods suggesting actinomyces. (Figure 2) No acid fast bacilli were seen. Blood cultures were obtained and intravenous penicillin-G (24 million units/day) prescribed. His temperature continued to rise to 101-102 F for the first four days, then gradually decreased to normal. Because of the presence of empyema type fluid, numerous attempts were made to aspirate more pleural fluid without success in spite of radiologic evidence of increasing pleural fluid. (Figure 3) This failure to aspirate fluid was assumed to be due to loculations. After the first 24 hours of penicillin therapy the patient improved steadily. Seven days after admission, the dose of penicillin was decreased to 12 million units/day. On the ninth hospital day a successful theracentesis was performed, which revealed only 100 ml of thin straw-colored fluid with a white cell count of only 74 lymphocytes. The patient continued to improve, both clinically and by chest x-ray, and was discharged fifteen days after admission, with a prescription of phenoxymethyl penicillin 500 mg every four hours orally and probenecid 0.5 gm every six hours.

His blood cultures showed no growth, but the cultures of the pleural fluid revealed an anearobid mycelium believed to be *Actinomyces israelii.* This identification was subsequently confirmed by the National Communicable Disease Center in Atlanta, Georgia. Approximately three weeks after the patient's discharge, the probenecid was discontinued. Phenoxymethyl penicillin, 500 mg orally every six hours, was continued. By this time he felt very well and had returned to his usual job. Chest x-ray revealed only some slight residual pleural changes. (Figure 5)

Discussion

Morphologically the actinomyces are a heterogeneous group of branching filamentous micro-organisms stated to be closely related to true bacteria. *Actinomyces israelii* is a Gram positive, non-acid fast, non-motile pathogenic anaerobe. In tissue, it usually forms masses of mycelia called "sulfur granules" or smaller clumps of branching filaments.[1] The lesion eventually forms a granulomatous type reaction following initial edema and infiltration by mononuclear cells and fibrovascular proliferation. Central necrosis and suppuration follow, in which the "sulfur granules" often can be aspirated. The lung lesion is usually an abscess, a bronchopleural fistula, or empyema.[2] Generally the lesions are distributed into three groups, cervicofacial, abdominal, and thoracic, among which the incidence is variably reported.[3] Analysis of 37 proven cases of actinomycosis at the Johns Hopkins Hospital over a period of twenty-five years revealed the primary focus to be in the lung in 13%, which is the usually quoted figure. This group found only a 24% incidence of cervicofacial lesions compared to the 63% that is usually quoted from other series of cases.[4] Numerous other sites of involvement have

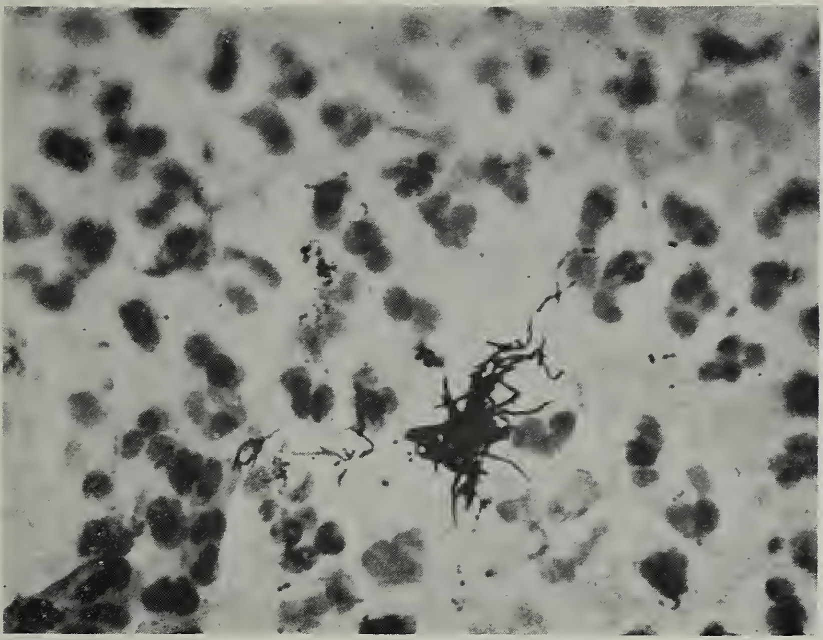

Figure 2
Photomicrograph of patient's gram stained pleural fluid on admission, showing branching filaments of actinomyces israelii.
Courtesy of E. G. Scott

also been reported, including a few cases of testicular actinomycosis some of which were considered to be secondary extension from a primary intestinal focus.[5]

Most of the reports of pulmonary actinomycosis have been in the British medical literature. The British also describe an "allergic alveolitis" due to inhaled actinomycetes in mushroom houses during the spawning process (so-called "mushroom worker's lung"), which is a benign, self-limited illness requiring only symptomatic treatment.[6,7] Four cases of pleural-parenchymal actinomycosis were reported in 1965, three of which required open biopsy or drainage of the abscess cavity to make the diagnosis; all subsequently did well on penicillin or tetracycline.[8,9,10]

The pathogenesis of actinomycosis has been studied but still is uncertain. Auto-innoculation is probably the method of infection following minor or major trauma, usually to the oral cavity or the chest. Dental procedures which enable the patient to aspirate or swallow debris which frequently contains the organism have often been blamed for the pathogenesis of the disease.[11]

The treatment of actinomycosis has undergone quite an evolution. In the pre-antibiotic days such agents as iodides, thymol, copper sulfate, autogenous vaccines, and even irradiation were used with questionable efficacy. Wide surgical excision of the infected area was also used where feasible and is still felt to be of

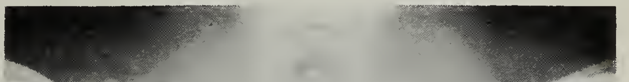

Figure 3
Chest x-ray two days after admission showing an increase in left pleural effusion.

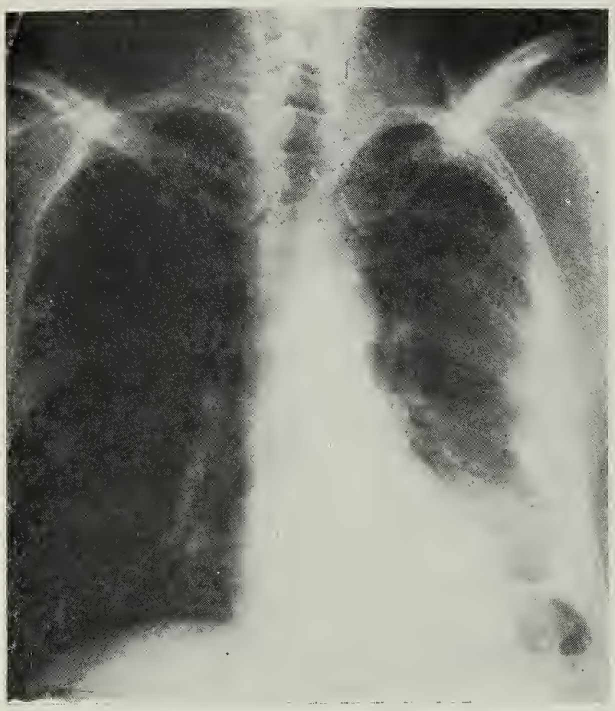

Figure 4
Chest x-ray at time of discharge showing some loculated pleural fluid.

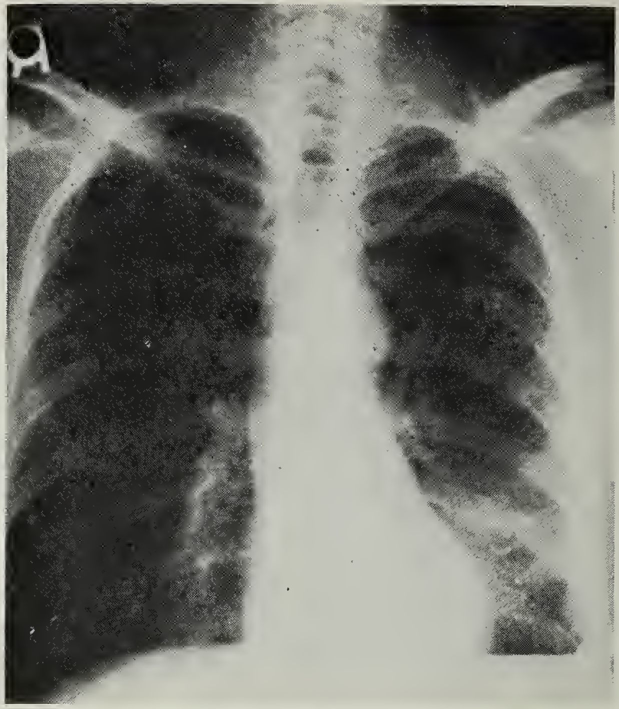

Figure 5
Clinic follow-up chest x-ray three weeks after onset of illness.

benefit today in spite of better forms of medical treatment. The frequent resection of pulmonary lesions has also been attributed to their close resemblance in some cases to bronchogenic carcinoma both radiologically and at the operating table. The early 1940's brought the sulfonamides into use, usually in the form of sulfadiazine, yet their efficacy was also uncertain. They remained popular until penicillin was available. Initially penicillin was also felt not to be very effective, apparently because of the very small doses that were used. Later when penicillin was more plentiful and doses of over 500,000 units per day were used, it was clearly the most effective drug available. By the mid 1950's cures had also been reported with the tetracyclines, chloramphenicol, and erythromycin.[12] Isoniazid also gained some popularity and was felt to be an inexpensive and effective form of therapy in rather large doses (10-18 mg/kg of body weight).[13] For the past decade the undisputed drug of choice has been penicillin, given initially in large parenteral doses (10-20 million units/day.[12] There is probably no advantage to adding sulfa drugs to a course of penicillin in the treatment of actinomycosis, but if the patient is allergic to penicillin, tetracycline or erythromycin in a daily dose of 2.0 gm has been advocated.[14]

The patient presented here received 12 to 24 million units of intravenous penicillin-G daily for approximately two weeks, followed by a daily dose of 4.8 million units of penicillin-V orally with probenecid to maintain optimum blood levels of the antibiotic. Even though the temperature curves and chest x-ray did not show improvement for the first week, the patient was clinically improved after the first twenty-four hours of treatment. The worsening appearance of the chest x-ray (Figure 3) until January 28, was undoubtedly due to pleural fluid that was loculated, making it difficult to be aspirated. Thus far his outpatient follow-up visits have revealed him to be doing well, and it is planned to continue his oral penicillin for at least three to four months of total treatment. He has been referred for dental care since we feel that aspiration of calculus from his mouth may have been the route of infection.

Summary:

We feel that this patient represents a case of primary pulmonary actinomycosis with empyema which responded well to large doses of penicillin. We also feel that we were quite fortunate to make the diagnosis and to initiate a proper form of therapy early in his illness.

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The assistance of William J. Holloway, M.D., Director of the Infectious Disease Laboratory, E. G. Scott, M. S., Director of Microbiology, and his laboratory staff, and Emil Cicvak, M.D., medical intern, is gratefully acknowledged.

* * *

INDUSTRY AND MENTAL ILLNESS

Continued from page 296

How can the problems of employees be dealt with?

We must try to attain insight into the motivations of both ourselves and others.

We must recognize that feelings of anger, fear and depression are normal in our culture and that there are healthy methods of dealing with them.

Rather than preach we must listen.

Rather than berate we must try understanding.

Rather than reject we must be attentive, which is often seen in the eyes of the troubled one as acceptance.

* * *

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

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The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes have not changed during preceding 12 months.

Extent and Nature of Circulation	Average No. copies each issue during preceding 12 months	Actual No. copies of single issue published nearest filing date
A. Total Number Copies Printed	970	970
B. Paid Circulation		
1. Sales through dealers, carriers, street vendors and counter sales	51	51
2. Mail subscriptions	664	664
C. Total Paid Circulation	715	715
D. Free distribution by mail, carrier or other means	220	215
E. Total Distribution	935	930
F. Office use, left-over, unaccounted, spoiled	35	40
G. Total	970	970

I certify that the statements made by me above are correct and complete.

ANNE E. SHANE

CLIMATOLOGY AND MEDICINE

Article VI

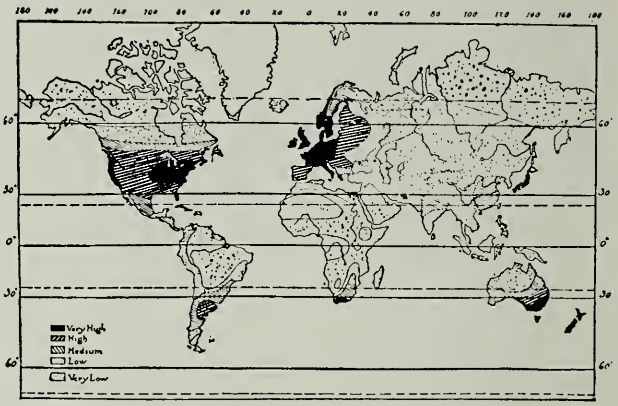

Figure 7
The distribution of civilization. From E. Huntington Civilization and Climate, Yale University Press, New Haven, ed. 3, 1924, p. 295.

Lewis B. Flinn, M.D.

As indicated in the previous five short articles, the progress of civilization seems in this series to have something to do with climatic change. Ellsworth Huntington[1,2,3,4] made exhaustive, intriguing, and rather convincing studies of the many facets of civilization to support the thesis of the stimulating effect of cyclonic storms. He analyzed the use of libraries, attendance records at work, productivity of factory workers, mortality statistics and many other areas of community concern as related to cyclonic storms. Northwestern Europe, England, Scandinavia, the northeast, northcentral, and extreme northwest coast areas of the United States have perhaps the most highly developed civilization (Figure 7). These areas are subject to the most climatic changes and storms. They also have higher urban populations with less crowding in dwellings compared to other regions. Storms move eastward in this temperate zone. In the southern hemisphere the land masses are smaller so that the climatic changes are less violent and less frequent, simulating more nearly the weather of the open sea. Across Russia and Siberia the climate is very cold in winter and hot in summer, not changeable, not cyclonic as in Europe and America. Long wet and long dry seasons in India are not stimulating. In tropical land masses the weather is monotonously hot and even. Climatic cycles occur every eleven to twenty-two years when the weather is warmer or cooler. The direction of these large cycles of change is not west to east as in the rapid cyclonic changes, but toward or away from the equator. One outstanding example of this was the warm weather in Iceland, Greenland and northern England about the year 1000.

The human race seems to have the best health when the average temperature for day and night together is 64°F, 70°F midday and 55°F at night. Preferable humidity is 80%. However, physical activity and mental activity are higher at an average temperature of 40°F with mild frost at night and 50°F temperature during the day.

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THE NURSING REFERRAL PROGRAM IN A V.A. HOSPITAL

• Comprehensive planning and continuity are integral parts of good nursing care. The patient's ability to readjust to community living is enhanced by careful assessment of the problems he will encounter in making the transition from hospital to home. The Nursing Care Referral Program at the Wilmington Veterans Administration Hospital is actively assisting in making this transition as easy as possible for its patients.

EMILY M. ELDER, R.N.
MARJORIE C. POOLE, R.N.

The Veterans Administration has long recognized the nurse's responsibility in insuring continuity of nursing care in all its aspects: between nursing shifts, between services within the hospital and outside the hospital. Recently, increasing emphasis has been placed on restoring veterans to the community, be it nursing home, community residence or family home. Our focus here will be on the last phase, discharge planning and referral for post-hospital nursing care.

Comprehensive nursing care in the hospital includes the setting of short- and long-term goals to meet the patient's needs. Discharge planning should begin with admission. It is the nurse's responsibility to assist the patient to achieve the maximum of his capabilities, to accept his limitations, and to plan with him and his family the ways in which he can maintain his optimum state of health.

The major responsibility for outlining the follow-up care needed by the patient rests upon the physician. Many times the patient's need for instruction, support, equipment, and treatment does not disappear when he leaves the hospital. In a study of referrals, the majority of physicians indicated that they expected nurses to feel free to explore with them the possible need of patients for public health nursing services.[1] Planning for "continuity" should be as much a part of total care for all patients as planning for diagnostic studies or prescribing medications.

A nursing referral program was initiated in the V.A. in 1955. However, few referrals were actually being made at the Wilmington V.A. Hospital. From a practical standpoint, it was recognized that one nurse in the hospital must assume primary responsibility for initiation and follow-through of interagency nursing referrals. A community-minded Chief of Staff and Chief, Nursing Service, provided the vision and leadership to establish the position of Public Health Nurse Coordinator. In May, 1968, a nurse with a public health background and extensive experience in both inpatient and outpatient V.A. facilities was appointed to this position.

The position of Public Health Nurse Coordinator is one in which the incumbent has been freed of administrative responsibilities and allowed to work within the context of the hospital needs as she sees them. She has defined her functions as they have evolved as:

1. Assessment of patient's nursing needs while in the hospital in relation to post-hospital planning.
2. Helping the hospital staff identify pa-

Miss Elder is Public Health Nurse Coordinator, and Miss Poole is Chief, Nursing Service, Veterans Administration Hospital, Wilmington, Delaware.

tients who will probably require continuation of care at home.

3. Assisting the nursing staff to prepare the patient and his family for discharge and, when appropriate, assisting with patient teaching.
4. Gathering meaningful material to promote appropriate post-hospital plans.
5. Promoting utilization of community resources.
6. Participation in educational programs to emphasize the importance of and the means of assuring continuity of nursing care.
7. Serving as liaison with community nursing agencies.
8. Participation in selection, referral, and follow-up of patients placed in nursing homes.
9. Working closely with head nurses to implement an effective, on-going referral program.[2]

Routine Procedure

During the first month in her new position, the Public Health Nurse Coordinator familiarized herself with community health facilities, hospital procedures, the hospital itself, the staff and the patients. She gave a brief explanation of her role at meetings of division and service chiefs, medical and surgical staffs, and social service staff and to all levels of nursing service. She emphasized that she did not replace any of the hospital personnel and that her service was an adjunct to the existing services. It was found that the most meaningful learning takes place when the coordinator and the staff work together on a specific problem.

The Public Health Nurse Coordinator frequently visits each ward to review with the head nurse the nursing care plans for potential referrals. She usually interviews the patient and his family. As a result of suggestions by the head nurses, an on-going list of potential referrals is maintained in the Kardex on each ward. This has brought focus on the need for early discharge planning and has proven to be productive in the number of referrals.

High Priority Diagnosis

A 5x8 card is supplied to the Public Health Nurse Coordinator containing the name, address, birth date and admission diagnosis of each new patient. This identifies high priority diagnoses for follow-up such as cerebral vascular accidents, diabetes, tuberculosis and amputation. These primary diagnoses aid the coordinator in her initial work with the nurse, the physician, the patient and his family.

The head nurse has been found to be the most knowledgeable person concerning the patient's capabilities and needs while he is in the hospital. Through guidance from the Public Health Nurse Coordinator, she has a growing awareness of the patient's needs that can be met by a community agency when he is discharged. The need is easily identified for the patient who needs an injection, a dressing change or bedside nursing care. But most of our referrals have been for general supportive nursing care and health supervision.[3] Can he follow his medication schedule? Will he go to his family physician when his supply of medicine is exhausted? Is he following his diet? We have found that even one visit by the Public Health Nurse is good to assist the patient in making the transition from hospital to home; to determine that he can follow through on the medical advice given him; and to be assured that his family will support him in his efforts.

The Public Health Nurse Coordinator has frequent and direct contact with ward physicians and social service workers. Cooperative working relationships have developed readily with these two groups. Social Service has been most generous in sharing its knowledge of community resources. Good rapport and inevitable over-lapping of interest have helped to develop understanding and appreciation of the contribution of each to patient care.

During the eight-months' period of May 1 through December 31, 1968, a total of 119 referrals were made to 29 nursing agencies in different geographical areas. Table I indicates the age distribution of these patients.

The physician or social worker suggested home nursing follow-up for 63% of the pa-

TABLE I

AGE	NUMBER	PERCENTAGE
70 years and over	39	32.7
60-69 years	15	12.6
50-59 years	26	21.7
Below 50 years	39	32.7

tients who were referred for post-hospital nursing care. The Public Health Nurse Coordinator assists in the identification of the patient's needs by being knowledgable about the resources available and how to attain them.

Of the patients 46.2% were referred to the two home nursing agencies in Delaware: the Delaware State Board of Health and the Visiting Nurse Association of Wilmington, Inc. The remainder were referred to nursing services in the three neighboring states of New Jersey, Pennsylvania and Maryland. There has not been a single instance in which we were unable to complete a referral because of a lack of nursing service in the patient's community.

From the 119 referrals, we have received 104, or 87.3%, return reports. The feedback reports from the nurse who gives the follow-up care to the patient in his home provide great motivation for the over-all program. The Public Health Nurse Coordinator makes sure these reports are seen by the physician, nursing personnel, social worker, and other therapists involved in making the referral. It is then permanently incorporated into the patient's hospital record.

Every effort is made to supply meaningful information about the patient at the time of the original referral to the home care agency. The Public Health Nurse Coordinator's name and extension number is listed as the person in the V.A. to contact for information about the patient. This improves communication between the hospital and the community agency if additional information or new orders are needed for the referred patient.

From our experience, two factors have emerged as essential to a successful referral program. Support and encouragement for the program from Nursing Service and Management are necessary to accomplish the aims. Secondly, the Public Health Nurse Coordinator should have experience in Public Health and in the organization she represents. She should be free of administrative responsibility and conscientious enough to develop the program to the maximum of her skills.

We feel the following benefits have accrued to better patient care from our program:

1. There has been a marked increase in the quantity and quality of referrals, which means that we are providing better continuity of nursing care to the discharged patient.
2. Nursing personnel are becoming more skilled in identifying and interpreting those needs of the patient and his family which can be met by a community agency when he leaves the hospital.
3. Communications have improved between the hospital and the community agencies.

All of this provides satisfaction to patients, families, hospital personnel and the Public Health Nurse Coordinator.

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Taken Any Good Pictures Recently?

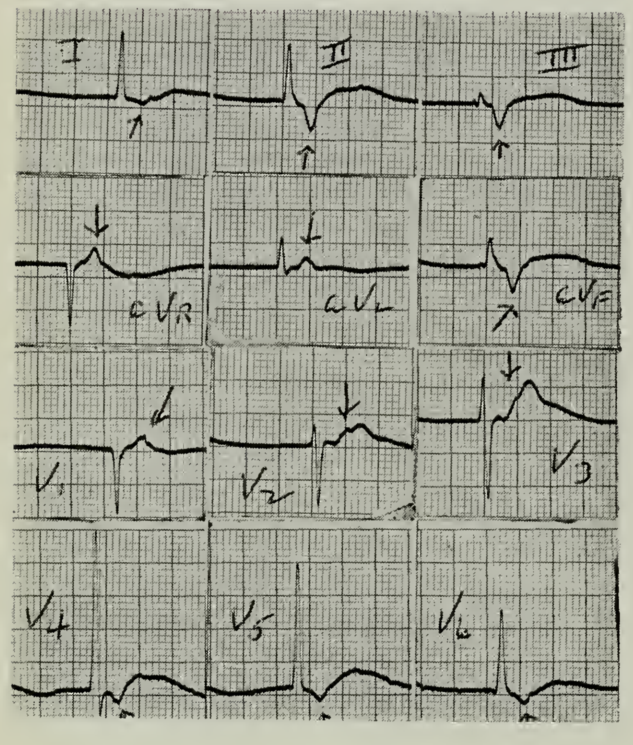
We are aware that among our doctors there are many good photographers. The Journal would like to establish as a regular feature a page dedicated to photographs taken by physicians: medical subjects, travel pictures, photomicrographs of especial aesthetic or scientific interest, etc., etc. Black and white glossy prints are needed for reproduction; they can be returned if you request. Send us your favorites.

P Q R S T

INTERESTING ELECTROCARDIOGRAMS

Editor: A. Henry Clagett, Jr., M.D.

A.



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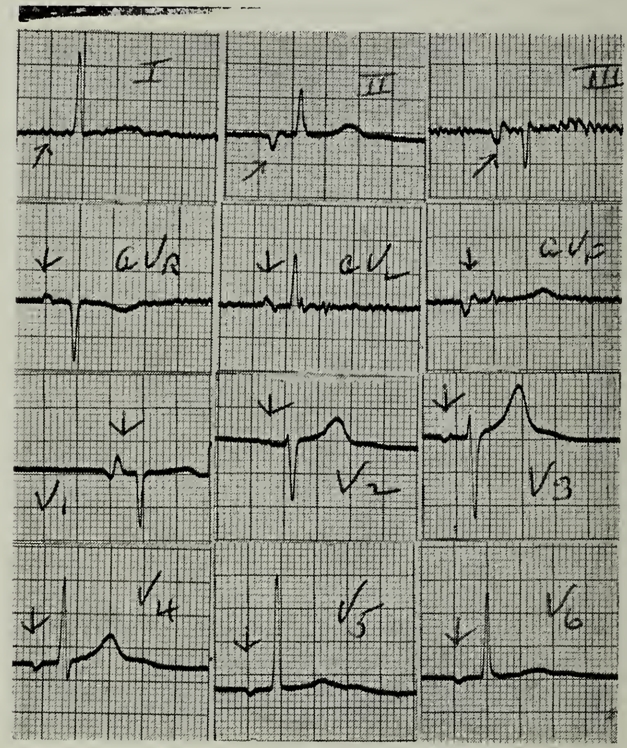

Clinical Data:

Male, age 64. Attack of syncope. Mildly hypertensive. Question of hypoglycemia. No chest pain. No digitalis.

Reading:

Rate — within normal limits.
Rhythm — nodal rhythm. P waves buried in the ST segments (indicated by arrows).
Complexes — high voltage R wave in V-4 and V-5. T waves low voltage in left chest.

Interpretation appears on page 308

SCREENING FOR CANCER: HOW SHOULD IT BE DONE?

• Screening for cancer should include examination of all high-risk areas. Various educational techniques and cancer screening programs are important aspects of comprehensive health care.

Robert W. Frelick, M.D.

One of the most important of the multiple facets associated with a comprehensive health program is that portion of the program which deals with the prevention, diagnosis and treatment of cancer. Specific anti-cancer activities include portions of the physical examination such as breast examination, procto-sigmoidoscopic examinations, and pelvic examinations with Papanicolaou smears and endometrial suction smears, as well as laboratory procedures such as chest x-ray and/or sputum checks for malignant cells.

Papanicolaou smears should be repeated periodically, at least every five years from ages 30 to 50 or 60. High risk groups need to be checked more frequently than a five-year interval. Those at risk include women who were first pregnant under the age of twenty, all women who have had more than one child, women of limited income and education, and women with vaginal spotting, abnormal bleeding, or discharge. Self irrigation (vaginal) is a new method of obtaining smears.

Endometrial suction smears for cancer of the uterine fundus should be done periodically, at least every 5 years from age 45 to 75. Special attention should be planned for those who are over-weight, hypertensive, diabetic, and/or subject to menstrual problems.

Self-examination of the breasts should be encouraged at the time of the "smear" whether the latter is done by physicians or technicians. Demonstration of self-examination techniques should be part of an examination and educational program.

Regular procto-sigmoidoscopic examination should be done periodically, at least every five years over the age of forty and more frequently if there are bowel symptoms.

Chest x-ray and/or sputum checks should be done periodically, at least yearly for those who have smoked a pack or more of cigarettes per day for over twenty years.

Education A "Must"

Education is needed to implement any comprehensive health program or system. In the field of cancer prevention and early diagnosis, special educational techniques are needed, and they should be part of a fully integrated family life educational program in the schools. All programs should involve the general public, including those who have limited comprehension of written material. Educational efforts must also serve those who respond better to person-to-person approaches and to television and radio. All cultural groups need to become involved in health education efforts, whether these efforts are government sponsored or developed by such groups as the American Cancer Society. Research sociologi-

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Dr. Frelick is Director, Department of Medicine, Wilmington Medical Center.

cal studies may be needed to determine group needs and reactions to programs in varied societies. Mother-daughter educational programs, for example, may be fruitful for some, but not for all. Recruitment and training of para-professional personnel will be a necessity for any screening program, at the patient level and in the laboratory. Education of medical and para-medical personnel must be started early in their professional schools and continued throughout their professional lives.

Value of Pilot Screening

Pilot screening programs, often developed for one site, may trigger education of both professional personnel and the public. They may also be a source of statistics needed in evaluation of a program. Neighborhood health units, especially those associated with recognized community organizations such as schools, may be helpful in screening and education as part of a comprehensive system of health care.

Ideally, comprehensive health care envisions a physician-patient relationship, either individually or as part of a group or clinic. This includes periodic history and physical examinations. The periodicity may vary with age and the problems at risk. Multiphasic screening may be one of the better ways to help such examinations by conserving valuable professional time through the delegation of routine studies to professional assistants, automated laboratories, etc.

The screens we are looking for in cancer should be for the areas of greatest yield which include breast and uterus, rectum, and oropharynx. My own feeling is that this screening should be tied in with a comprehensive health program.

This summary of my personal conclusions on cancer screening was in part stimulated by the recent Congress on Cancer of the Uterus, sponsored by the American Cancer Society.

INTERPRETATION — Interesting Electrocardiograms (Page 306)

AV nodal rhythm, usually of no clinical significance. It can accompany many clinical conditions but is diagnostic of none.

With deeply inverted P waves in leads 2, 3, and aVf, the possibility of this being part of an abnormal T wave might be feared. A tracing taken the next day (insert ECG No. 4-B) shows the P waves back in their normal position. The PR interval is 0.18 second but the P waves are still inverted in leads 2, 3 and aVf as well as the left chest leads.

The importance of these two tracings is that a diagnosis of organic heart disease should not be made on these alone.

(Prior to the second tracing, the monitor showed wandering pacemaker with the P wave wandering back and forth through the QRS complex.)

* * *

HYPOTHESIS vs THEORY

Don't confuse *hypothesis* and *theory*. The former is a possible explanation; the latter, the correct one. The establishment of theory is the very purpose of science.

Quoted by Howard Fabing and Ray Marr in *Fischerisms*

Letters to the Editor

To the Editor:

The State Board of Health has asked for repeal of the act which requires annual examination of food handlers. This is because we agree essentially with the position taken by the United States Public Health Service in a memorandum dated June 11, 1968. The first three paragraphs of this memorandum explain the basic principles involved.

> The U.S. Public Health Service has for many years taken the position that general health examinations for persons who handle and process food are not of sufficient value in the prevention of foodborne illnesses to insist upon their routine use. Such examinations, at best, can only give information about an individual's status on the day of examination. They may in fact give a false sense of security, since it is well known that a person may be entirely well one day, yet capable of transmitting disease the next day.
>
> The recommended approach to the general problem is the education of food handlers in the essentials of personal hygiene, the sanitary handling and preparation of food, the holding of potentially hazardous foods at safe temperatures, and the proper cleaning and sanitizing of food utensils and equipment. All food handlers should be thoroughly indoctrinated in regard to their responsibility to the consumer, and the necessity of reporting to the manager the onset of illness, particularly diarrheal disorders, or the existence of furuncles or boils. Such educational efforts should be on a continuing or repetitive basis.
>
> Managers of food service and food processing establishments also have the responsibility of insuring that employees afflicted with furuncles, boils, exposed sores, or gastroenteritis, do not work in any area or in any capacity where there is a likelihood that they might contaminate food, utensils or food equipment. In addition, managers of food establishments should insist that workers who are ill seek medical attention, and should report promptly to the health authority having jurisdiction any suspected cases of communicable disease among employees in order that the health authority may follow up such cases. Further, those employees who have been ill for an extended period of time should not be returned to duty unless they have been examined by a physician and released. These responsibilities of management should be included in state and local food regulations.

The full text of the memorandum referred to above is available from our office.

May I also point out that New York City eliminated compulsory physical examinations for food handlers more than twenty years ago and most of the states have followed suit. The annual examination of food handlers is, therefore, considered obsolete by specialists in the field of preventive medicine.

Floyd I. Hudson, M.D.
Executive Secretary,
Delaware State Board of Health

To the Editor:

The emphasis in *Cryptorchism: A Brief Review of Current Concepts*, Delaware Medical Journal, September, 1969 is a little different from the usual one in the pediatric literature. In my experience the association of congenital urinary tract anomalies is lower than the 1/3 stated by Doctors Raney and DeCaestecker. Many people do not feel concerned about the malignant potential, but basically I agree with the authors.

In terms of treatment, I feel strongly that careful, gentle physical examination can demonstrate which testicles will come down and which will not. The initial examination at any age must involve gentle but thorough palpation in an effort to determine whether there is a retracted, but normal, testis. If one is found and can be pushed into the scrotum, no therapy of any sort is necessary.

Particularly, chorionic gonadotropin is not indicated, since the organ will descend spontaneously. If something is felt which cannot be moved, it is almost certainly an undescended testicle and requires operative placement for a successful result. Some testes are not palpable, and then it is impossible to differentiate an atrophic testis from agenesis of the testes. In these conditions also, chorionic gonadotropin has nothing to contribute and may in fact cause damage. The ectopic testis can usually be palpated in its unusual location and can readily be placed in normal position by operation.

The question as to when operation should be undertaken, is the subject of much discussion; there is a growing feeling that the sooner the better is proper. Where the non-descent is bilateral, there is more pressure to institute treatment early, as is perfectly appropriate; but even in the unilateral situation, it should be possible to undertake surgery somewhere between the ages of 18 months and 4 years in order to make it as easy as possible for the patient and to give the best chance for normal development of what is probably a somewhat defective organ at best. The reasons for operating are: to assure as normal development as possible for the testicle, since in an undescended position this will not take place; to avoid the unfortunate psychological impact of a physical abnormality; to treat the usually associated inguinal hernia; to avoid irreparable damage to a relatively fixed gonad by trauma; and, hopefully, to reduce the malignant potential of the improperly placed organ (at the very least to put it where it can readily be palpated). A good summary of the problem in children is found in "The Empty Scrotum" in *Pediatric Clinics of North America.*

Charles L. Minor, M.D.

To the Editor:

The tuberculin skin test and sputum examination for acid fast bacilli are more specific than the physical examination and chest x-ray, but not 100% so. Atypical acid fast bacilli, which are not M. tuberculosis, may confuse the results of the direct sputum examination. Because the testing material is old tuberculin, the tine test is not quite as accurate as the intermediate strength Mantoux skin test, (PPD 0.0001 or 5 TU) and it may give a false positive result. But the tine test has a definite place as a screening test, and a false positive can always be clarified by subsequently testing with intermediate strength Mantoux, which involves the intracutaneous injection of 0.0001 cc. of purified protein derivative (PPD). Occasionally a *false negative* result with PPD 0.0001 occurs, when the patient is anergic, either because he is very toxic or because he has some other disease, such as sarcoidosis, or after measles or smallpox vaccination.

In reading the tuberculin skin test, reactions of 5 mm and under are negative; those 6 to 9 mm are doubtful; 10 mm and over are positive. The reaction refers to the amount of induration and disregards the amount of erythema, which is only of consequence if it is unusually marked. Doubtful reactions can sometimes be clarified, by testing with PPD-S (Purified protein derivative-standard), PPD-B (Purified protein derivative-Battey), and PPD 2nd strength, (.005 or 250 TU,) which are available at the local health units. If the PPD-S is negative or doubtful and the PPD-B, or PPD 2nd strength, is definitely positive, we have evidence of an atypical infection, which can be further pursued.

Nathaniel Young, M.D.
Director, Medical Services
Emily P. Bissell Hospital

* * *

WHAT IS NORMAL?

The physician would be quick to admit that sometimes he has less certainty in certifying the normal than the abnormal state of an organ or system. The early recognition of the transition from the healthy to the diseased condition may be difficult, if not impossible.

David Seegal,
Journal of the American Medical Association,
182:1031, 1962.

Editorials

ANOTHER DIRTY-DOCTOR'S BOOK

Another book has joined the recent spate of exposés of the hidden sicknesses of us so-called healers and our hospitals. *Sickness and Society*[1] by R. S. Duff, a pediatrician, and A. B. Hollingshead, a sociologist, both of Yale University, is a compendium of the total experience of 161 adult patients admitted to the "Medical Center of Eastern University," a euphemism presumed by those who should know for the Yale Medical School's Medical Center in New Haven. The book has already been sensationally abstracted by McCall's, a widely- read ladies' magazine.

The patients studied, who included 65 bedded in private rooms, 54 in semi-private, and 42 in ward accommodations, were interviewed four times daily on the first, third, and fifth days of their hospital accommodations by specially trained interviewers. The survey's purpose was to thoroughly answer five questions:

"1. Did the illnesses of sick persons reflect factors operative in their effective social environment?

"2. Was the care patients received related to the organization of medical institutions?

"3. Did sick persons influence their own care?

"4. Did the role relations of the several lay and professional groups involved in patient care influence the delivery of medical services to the sick person?

"5. What was the impact of the illness on the sick person and on his family?"

Dr. Franz Ingelfinger, thoughtful editor of the New England Journal of Medicine, discussed their findings in Harper's Magazine.[2] "If Duff and Hollingshead are right," he said, "their study hospital is a reversion to bedlam, its patients maladjusted and conniving, and its physicians poltroons shirking responsibility to all but themselves."

For the survey team was able to label only one patient's care as exemplary; misdiagnosis of physical ailments occurred 12% of the time and of mental status, 34% of the time. The latter is especially important since on admission, one-half of the private-semiprivate group were moderately to severely disturbed and 10% actually psychotic. Although the illnesses of more than one-third of the non-surgical admissions were related to "way of life," 98% of these patients' physicians when specifically queried were uninterested in being told more about their patients' private lives. According to Dr. Ingelfinger's resume and critique, ". . . a physician spent on an average of 0.41 minutes per twenty-minute period in the hospital with his private patient and 0.19 minutes per twenty-minute period with his semi-private patient. The authors and their team, on the other hand, required an average of 125 hours — practically 16 conventional working days — with each of their subjects and their families to obtain the material for a 'global-judgment' . . ."

We join with Dr. Ingelfinger in congratulating Yale for its continuing willingness to be examined so minutely and so publicly. We also share with him his concern that "when the mystique of medicine is torn to shreds, patients as well as doctors lose in the shredding." But, in our opinion, the total impact of this book will be of benefit to patients, and this should remain our first concern, bruised as may be our egos and our public images.

"Taken for an exposé rather than for scientific research, *Sickness and Society* has many virtues," writes Dr. Ingelfinger. "The study is a distinct first; no one else has taken such a meticulous and hard look at what goes on as patients enter, pass through, and leave a hospital. And the book has identified deficiencies which can and should be corrected . . .

"All who work in or use a hospital will at first react to *Sickness and Society* with an incredulous 'Who, me?' Next, one hopes they will be moved to correct the fault they recognize in themselves."

We concur with Dr. Ingelfinger.

B.Z.P.

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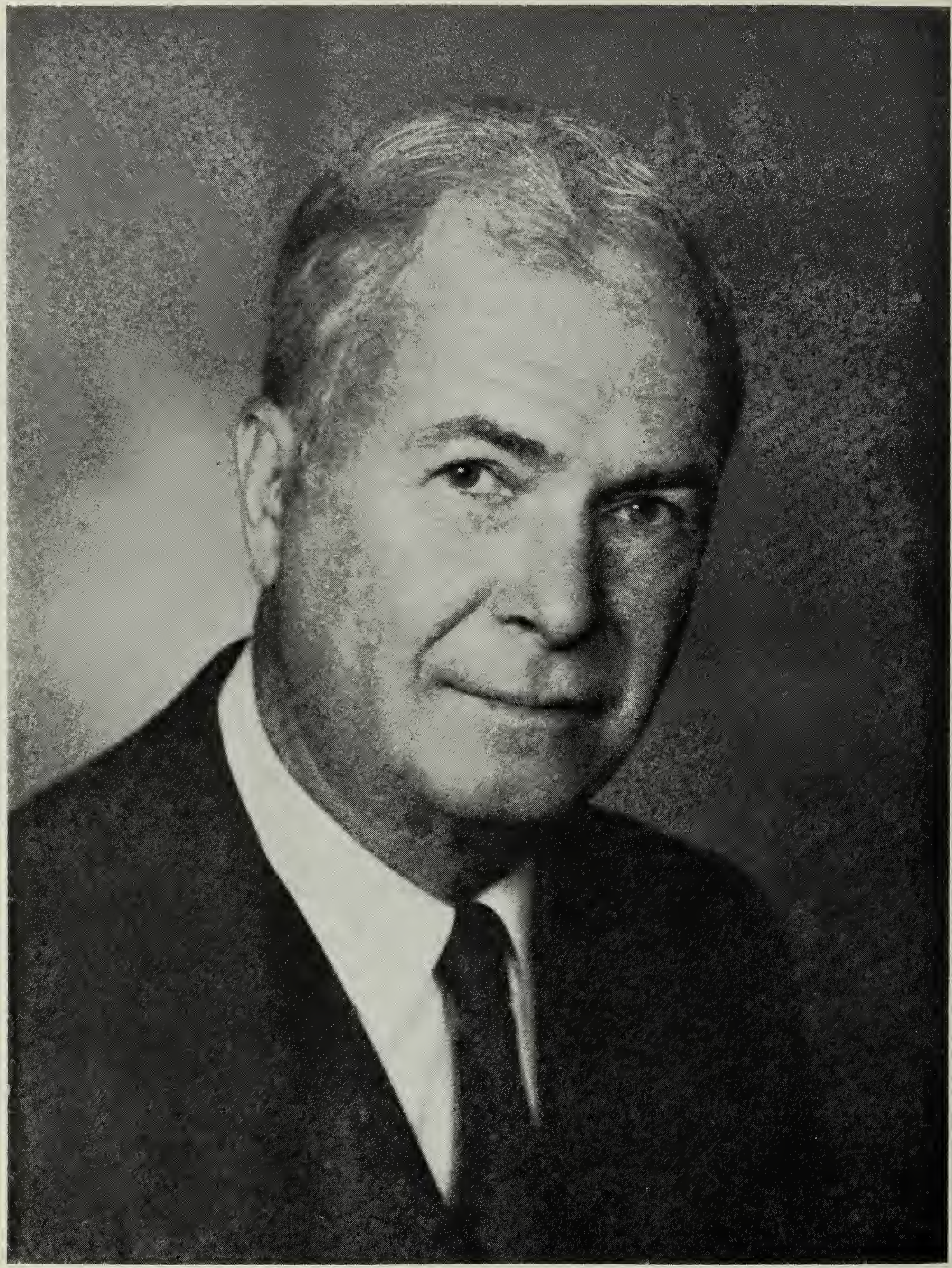
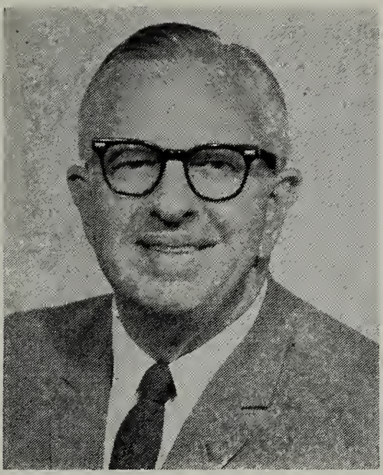
[1] Duff, R. S., and Hollingshead, A. B.: Sickness and Society, Harper & Row, New York, 1968.

[2] Ingelfinger, F. J., M.D.: The arch hospital: an ailing monopoly, Harper's Magazine, pp. 82-87, July, 1968. Reprints available, $.15 each, $12.00 per hundred, Harper's Magazine, Inc., 2 Park Avenue, New York, N. Y. 10016.



HENRY H. STROUD, M.D.

President, Medical Society of Delaware, 1969-1970



President's Page

CONTINUING MEDICAL EDUCATION

Recently there has been much talk about the possible methods to provide continuing medical education for all physicians, especially those not now participating in available programs. But in reality all physicians continue to learn medicine in one way or another after medical school and their internship and residency years. Besides reading journals, for formal education, they may attend medical meetings and postgraduate courses such as those offered by the Academy of General Practice and the various specialty groups.

Presently there is a strong sentiment toward getting physicians back into the classroom. Short refresher courses are more and more popular and have increased in variety as well as number. But all continuing medical education to be effective must strive to relate itself to clinical practice.

In Delaware all the hospitals have some form of continuing education program as, for example, the scheduled meetings of the various specialities at the Wilmington Medical Center, the radio seminars broadcast from the Pennsylvania Hospital in Philadelphia, and the lectures at the Academy of Medicine, and the series at the hospitals of our two lower counties sponsored by the Medical Society of Delaware.

There is also the future possibility that further development of the Delaware Valley Regional Medical Program may increase the educational opportunities for the members of the Medical Society of Delaware.

My own education in things medical has been enriched by my term, now ending, as your president. It seems fitting for me to end by reminding that the great Osler when speaking of medical education said, "To study medicine without books is like a sailor going to sea without charts. But to study medicine from books alone, is not to go to sea at all."

Charles M. Moyer

Deaths

Dr. Robert Aubrey McGregor

Dr. Robert Aubrey McGregor, who had practiced in Wilmington for more than five years, died on August 7, 1969, following a short illness. Death occurred in Oklahoma, where he had returned because of his illness.

Dr. McGregor graduated from the University of Oklahoma in 1952 and took his postgraduate work at Temple University Hospital. He taught at Temple University School of Medicine while conducting a practice in Philadelphia, prior to moving to Wilmington.

He was a member of our local medical societies, a member of The American Board of Colon and Rectal Surgery, and was president-elect of the Pennsylvania Society of Colon and Rectal Surgery.

He is survived by his mother, Mrs. Mary McGregor of Magnum, Oklahoma, and a brother, Dr. Frank H. McGregor, Oklahoma City. He was forty-three years of age at death.

Dr. Frank S. Hassler

Dr. Frank S. Hassler, specialist in obstetrics-gynecology, died on August 22, after a short illness. He had practiced in Wilmington for 23 years.

Dr. Hassler was a native of Harrisburg, Pennsylvania. He graduated from the University of Pennsylvania in 1939 and received his M.D. from the University of Maryland in 1943. He interned in the Delaware Hospital, then served in the Army as a captain in the Medical Corps aboard troopships from 1944 to 1946. Following Army service, Dr. Hassler returned to the Delaware Hospital for his residency in his specialty.

Dr. Hassler was on the staff of the Wilmington Medical Center and a diplomate of the American Board of Obstetrics & Gynecology. He was a founding fellow of the American College of Obstetrics & Gynecology; a fellow of the American College of Surgeons, The International College of Surgeons, and the American & International Fertility Societies; and a member of the New Castle County Medical Society and the Medical Society of Delaware as well as the A.M.A. He was also active outside medical circles, having made several trips to Alaska as a big-game hunter, and was a member of the Wilmington Country Club and president of the University of Pennsylvania Alumni Society of Delaware.

He is survived by his widow, Mrs. Mary E. Hassler; two daughters, Mrs. Ronald Herms, in Oklahoma, and Mrs. Andrew Lupton of Villanova, Pennsylvania; a son, Frank, Jr., at home; his mother and a grandchild. His death occurred the day before his 52nd birthday.

Dr. Alfred Leon Heck

Dr. Alfred Leon Heck, age 75, died on September 25, 1969. Dr. Heck was born in Wilmington and attended the University of Pennsylvania for his undergraduate and medical school training. He received his M.D. in 1919.

Dr. Heck had a colorful career after graduation. He went to Honolulu for resident training and then stayed in Hawaii for a year in the Public Health Service. He later was in Calexico, California, for five years as a health officer. He served in both Army and Navy—as an officer in the Army Medical Corps in World War I, and as a Naval Medical Officer in World War II. He participated in D-Day landings in the invasion of Okinawa in World War II.

Most of his fifty years in medicine were spent in Wilmington. He served as Chief of Surgery at St. Francis Hospital and Staff President at The Delaware. He also served on the Selective Service Board and was President of The New Castle County Medical Society. He was a member of the Medical Society of Delaware and the A.M.A. and a fellow of The American College of Surgeons. Many other associations with industry and social organizations marked his active career.

He is survived by two sons, A. Leon Heck, Jr., and Donald D. Heck, a daughter, Miss Madalon Heck, and five grandchildren, all of the Wilmington area.

Delaware Academy of General Practice

FIRST EXAM SCHEDULED FOR ABFP CERTIFICATION

The American Board of Family Practice has announced that it will give its first examination for certification in various centers throughout the United States. The examination will be over a two-day period on February 28-March 1, 1970. Information regarding the examination and eligibility for the examination can be obtained by writing to Nicholas J. Pisacano, M.D., Secretary, American Board of Family Practice, Inc., University of Kentucky Medical Center, Annex #2, Room 229, Lexington, Kentucky 40506.

Delegates at the American Academy of General Practice 1969 Congress of Delegates expressed concern about the limitation put on the number of applicants eligible for the initial ABFP examination and requested that a second exam be planned at the earliest possible date. An announcement to the Congress indicated that a maximum of 2000 applications would be accepted for the initial examination to be presented simultaneously in 35 localities. The delegates adopted a resolution that the first examination be made available on a first-come, first-served basis, for all interested, qualified applicants, and that a second examination be given on the earliest possible date and be given for an unlimited number of applicants.

Delegates also approved "How to Prepare for the Examination in Family Practice," and requested that it, along with a fact sheet giving dates and the 35 sites for the first examination, be distributed to every Academy member.

Delegates debated the method of nominations to the board of the ABFP with an eye to keeping the AAGP nominations for the members of the ABFP board free of politics.

The procedure adopted provided that each state chapter and the Academy's Board, with proper and adequate notification in advance, will submit nominations accompanied by sufficient documentation to the AAGP Commission on Education. After thorough review, the commission will present a report to the Academy's Board of Directors well in advance of the annual session of the Congress of Delegates. The Board will review all nominations and select six nominees who will be presented to the Congress of Delegates. The Congress also will be given the opportunity of making additional nominations from the floor.

The Congress will then vote to select three nominees. The three nominees receiving the highest number of votes will be presented to the American Board of Family Practice as official nominees from the Academy. From these the ABFP Board of Directors will elect one to fill the vacancy created by an expiring five-year term each year.

EXCEPTIONS AND RULES

> The old saying, so constantly and so blindly repeated, that the exception proves the rule, is as destitute of truth, as it is of meaning. Such an exception can prove only one thing, and that is, that the rule is not fully understood, or completely ascertained.
>
> *Elisha Bartlett, Philosophy of Medical Science, Pt. I, Ch. 3.*

In Brief

In the News

Members of the Board of Trustees of the new Delaware Institute of Medical Education and Research are J. Bruce Bredin, State Senator Frank R. Grier of Milford, and George M. Worrilow, Vice President for University Relations, all appointed by the University of Delaware; G. Barrett Heckler, M.D., Chairman of the Education and House Staff Committee of the Center's Medical-Dental Staff, Charles J. Harrington and Charles L. Reese, Jr., both Vice Chairmen of the Center's Board of Directors, all appointed by the Wilmington Medical Center; and Judith Tobin, M.D., of Seaford, Henry R. Horsey, Esq. of Dover, and Pierre L. LeRoy, M.D., of Wilmington, appointed by Governor Russell W. Peterson.

Norman P. Jones, M.D., replaces Eugene R. McNinch, M.D., as a member of the Delaware State Board of Health.

John A. J. Forest, Jr., M.D., of Dover has been appointed to the Mental Health Board.

H. Thomas McGuire, M.D., Howard L. Reed, M.D., and C. Anthony D'Alonzo, M.D., were speakers at the workshop of the Wilmington Council on Alcoholism at the University of Delaware, October 2, 1969.

Inducted as new Fellows of the American College of Surgeons at the annual Clinical Congress held in San Francisco this month were the following Delaware initiates: Anis Khalil Saliba, M.D., Lewes; Richard B. Crabb, M.D., Milford; Henry R. Cowell, M.D., John T. Hogan, M.D., Richard Lennihan, Jr., Alex M. Raney, M.D. and David L. Schafer, M.D., Wilmington.

Educational Program DDA

The Delaware Diabetes Association conducts 4 or 5 meetings each year for the benefit of juvenile diabetics. These meetings are for the parents and their diabetic offspring; however, anyone is welcome. The groups meet simultaneously, but separately, at informal evening meetings in the Academy of Medicine. Physicians and/or dietitians are present to inform them of various aspects of diabetes and diet. Informal discussion, including a question and answer session, is encouraged.

One can receive early notice of these meetings by joining the Diabetes Association. They are also announced the day of the meeting through the local newspapers and over the radio.

Speakers on "Ask the Doctor"

Speakers for November, 1969 on the Tuesday radio program, (11:05 a.m. WDEL) produced by the Medical Society of Delaware are: November 4, Christopher R. Donoho, M.D., *Winter Allergy;* November 11, Frank O'Brien, M.D., *Emphysema;* November 18, Richard Kester, M.D., *Psychiatric Services in Delaware;* November 25, Charles F. Richards, M.D., topic to be announced.

CLINICAL NOTICES AND MEETINGS

PG Course

The Department of Otolaryngology of the Illinois Eye and Ear Infirmary and the College of Medicine, University of Illinois, will conduct a postgraduate course in Laryngology and Bronchoesophagology November 3-14. If interested write: Department of Otolaryngology, College of Medicine, University of Illinois at the Medical Center, Post Office Box 6998, Chicago, Illinois, 60680.

American Society of Anesthesiology

The American Society of Anesthesiology will sponsor a conference on Respiratory Therapy, November 9-12, at the Statler Hilton Hotel, Boston. For information write: ASA Headquarters, 515 Busse Highway, Park Ridge, Illinois, 60068.

Postgraduate Medical Education

The Third Annual Postgraduate Conference, *Today's Hospital Problems,* a leadership course for Chiefs of Staff, Hospital Directors and Governing Personnel will be held November 12-15 at the Tides Hotel, Redington Beach, Florida. For further information write to: Postgraduate Medical Education, Mound Park Hospital Foundation, St. Petersburg, Florida, 33701.

Pediatric Allergy

A Postgraduate Course in Pediatric Allergy will be given in conjunction with the 1969 Asthma Symposium at the Children's Heart Hospital of Philadelphia, November 5-6. For information write: Leonard S. Girsh, M.D., St. Christopher's Hospital for Children, Allergy Department, 2500 N. Lawrence Street, Philadelphia, Pa.

Heart Scientific Sessions

The 1969 Scientific Sessions of the American Heart Association will cover a four day period from November 13-16 in the Dallas, Texas, Memorial Auditorium. Registration forms may be obtained from the Delaware Heart Association, Suite 60, Independence Mall, Wilmington, Delaware, 19803.

Correlative Neuroradiology

New York University Postgraduate Medical School announces a postgraduate course in *Neuroradiology with Clinical and Pathological Correlation* to be held November 17-21. For detailed brochure write: Office of the Recorder, New York University Postgraduate Medical School, 550 First Avenue, New York, N. Y., 10016.

Two Postgraduate Courses

The Chicago Medical Society will hold a course in Internal Medicine the week of November 3 through 7 and a course in Pediatrics November 17 through 21. The courses will be held at the Lake Tower Inn, Lake Shore Drive at Ohio Street in Chicago. Registration is limited. The fee for each course is $150.00. A limited number of resident physicians will be accommodated at a reduced fee. Write for registration information to: Andrew J. Brislen, M.D., Secretary, Chicago Medical Society, 310 South Michigan Avenue, Chicago, Illinois 60604.

Military Surgeons' Meeting

The Executive Council of the Association of Military Surgeons of the United States has dropped the registration fee to encourage their civilian counterparts to attend their 76th Annual Meeting at the Sheraton Park Hotel, Washington, D. C., November 17-19. Guest badges will be issued at the Registration Desk. Dr. Gerald D. Dorman, President of the American Medical Association, will give the keynote address. An excellent program has been set up for wives of the visiting delegates, including a visit to the White House with Mrs. Nixon receiving the group. For information write: Association of Military Surgeons of the United States, 8502 Connecticut Avenue, Chevy Chase, Maryland 20015.

Temple University Seminar

A postgraduate course in Office Psychiatry and Psychosomatic Medicine is being offered by the Temple University Department of Psychiatry. The Basic Course: Fundamentals of Interviewing Psychodynamics and Psychosomatic Medicine will be held October 22, 1969-March 18, 1970. The Advanced Course: Interviewing Psychodynamics and Improving Practitioners' Skills will be held November 12, 1969-January 28, 1970. For further information contact: C. J. Roddy, Temple University Department of Psychiatry, 3401 North Broad Street, Philadelphia, Pa. 19140.

The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

INTRA-ARTERIAL INJECTIONS

Barbiturates — Tranquilizers

Several patients were observed who suffered diffuse tissue damage following the accidental intra-arterial injection of barbiturates or hydroxyzine hydrochloride (Vistaril). In some cases the drug was injected into an artery of the upper extremity with resultant complete or partial loss of limb. In one case the injection was made into the superficial temporal artery with subsequent necrosis of the scalp and face. Radiologists often employ sedatives and tranquilizers in the performance of certain radiologic procedures. In many cases a needle or catheter may be within the arterial system, and this site of injection may be chosen. *Under no circumstances should sedative or tranquilizing drugs be given through an indwelling arterial catheter.* Tissue necrosis secondary to intra-arterial injection of barbiturates is generally thought to be the result of severe arterial spasm. However, recent studies indicate that a direct cytotoxic effect is involved. From studies conducted by the authors it is evident that barbiturates given intra-arterially are nephrotoxic.

The cytotoxic effect is apparently diffuse, and it may be assumed that, in addition to the kidney, various other organs would be similarly affected. In addition to barbiturates and hydroxyzine, certain other drugs are known to be toxic when given by the intra-arterial route. These include chloral hydrate, promazine (Sparine), myanesin, ethyl ether, tubocuracine, meperidine, strophanthin, phenothiazines, and amphetamine. It is important that physicians recognize the potential danger of intra-arterial injection of such drugs. If intravascular administration is required, it is best to utilize a vein on the back of the hand. If the antecubital region is chosen, it is wise to select a vein as far removed from the bracheal artery as possible. A small volume of solution should be injected and the patient's reaction noted. If an artery has been entered, a burning sensation will be noted in the area of distribution of the artery. The small initial injection also serves as a test for drug sensitivity. In making the intravenous injection, every precaution should be taken to avoid extravasation.

Klatte, E. et al. (Vanderbilt Univ. School Med.), Radiol. 92:700, Mar., 1969.

PROCAINAMIDE — Fatal Agranulocytosis

Six cases of agranulocytosis due to procainamide have been reported in the literature. Two of the six patients died as a result of this side effect. The present authors add another fatal case. The patient, a 75-year-old man, was admitted to hospital for treatment of paroxysmal atrial tachycardia. He was placed on procainamide, 500 mg every six hours orally. At that time the hemoglobin was 14.6 gm/100 cc, the hematocrit 41%, and the white cell count 4,600 cells/cu mm with normal differential counts and an adequate number of platelets. The patient responded to treatment and was discharged within one month on procainamide and digitalis. After six weeks the daily dose of procainamide was reduced to 1,500 mg. Approximately one month later the patient was readmitted to hospital with complaint of malaise, fever, chills, nausea, vomiting and diarrhea. Laboratory studies showed hemoglobin 13.5 gm/100 cc, hematocrit 39%; white blood cell count 700 cells/cu mm with almost 100% lymphocytes and no granulocytes. A sternal bone marrow specimen was obtained. The pathologic diagnosis was hypoplastic bone marrow, agranulocytosis. Procainamide was discontinued. Paroxysmal atrial tachycardia occurred shortly thereafter and was terminated by vagal stimulation. The patient failed to respond to massive antibiotic therapy and died 41 hours after admission.

Wang, R. I. H. & Schuller, G. (Marquette School Med., Milwaukee, Wisc.), Am. Heart J. 78:282, Aug., 1969.

THE FORUM

Environment And Health

ARE HERBICIDES CONTAMINATING SURFACE AND GROUND WATER IN DELAWARE?

E. M. Rahn and W. A. Davis

Herbicides are being used on 75 percent of the farmlands in Delaware, and their use is increasing. In view of the public's concern of pollution of our environment, the question naturally arises, "Are herbicides contaminating surface and ground water?"

Starting in 1967, water samples were collected from commercial fields treated with herbicides at several locations throughout the state. In addition, field and laboratory experiments were run at Newark and at the University Substation at Georgetown. Three of the most extensively used herbicides were included in these studies: Aatrex,[1] Treflan,[2] and Hyvar X.[3] Aatrex is the most widely used herbicide on our 180,000 acres of corn. Treflan is used to a large extent on our 160,000 acres of soybeans, as well as on lima beans, snap beans, tomatoes, peppers and cabbage. Hyvar X is used to a considerable extent where complete vegetation control is desired around industrial plants and along railroads and highways. To determine the amount of herbicide in the water samples collected, an F and M Model 810 gas chromatograph was used. This instrument could detect quantities of the herbicides as low as 1 part per billion (ppb) of water.

No Treflan was ever found in surface or ground water even when rain or irrigation followed within a few days of application. This chemical, applied at ¾ lb. per acre was soil-incorporated by discing, as is customary. This practice enhances adsorption of the herbicides by the soil and may at least partially explain why there was no Treflan in the runoff water. Aatrex, 2.4 lb. per acre, and Hyvar X, 20 lb. per acre, were sprayed on the soil surface. Except for three instances, none of the three chemicals were found in repeated sampling in small streams or drainage ditches adjacent to fields treated with the herbicides, or in a 15-ft. well located in the center of a 1-acre area of a loamy sand soil treated with herbicides.

In one instance, Aatrex was found in surface runoff water at a level of 7 parts per billion (ppb). This was from a 500-acre corn field near Lewes, Delaware, where a 1-inch rain fell 11 days after herbicide application. A level of 7 ppb is approximately 1/140th of the concentration needed to injure plants, and approximately 1/570th of the concentration permitted in corn by the Food and Drug Administration; this level in turn is at least 1/100th of the concentration that might injure animal life. Aatrex was not detectable in subsequent samplings beyond 11 days after application.

In a second instance, Hyvar X was found in surface runoff water at a level of 0.6 parts per million (ppm). In this case a 1-inch irrigation was deliberately applied to the site immediately after herbicide application. The material persisted in a decreasing amount for 46 days, after which no Hyvar X was detected. At another location around an industrial plant, Hyvar X was detected following a 3-inch rainfall 29 days after application. The maximum level obtained was below the concentration needed to injure plants and at least 1/17 the concentration that might injure animal life.

Mr. Rahn is Associate Professor of Plant Science, and Mr. Davis is Graduate Assistant, Department of Plant Science, University of Delaware.

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THE FORUM

Continued from page 319

A study of toxicity of Aatrex and Hyvar X solutions was made on small fish (common guppies, *Libesties reticulatus*) and red ramshorn snails *(Planorbis corneus)*. It was found that solutions of Aatrex at 1400 times the highest level found in the field, and Hyvar X at 17 times the highest level found in the field, were non-toxic to both species. Fish in the above investigation were exposed for a 60-day period, and snails were exposed for a 30-day period.

The study to date indicates that where recommendations are followed, properly used herbicides are not contributing significant amount of residue to our surface or drainage waters. At the moment, no sub-surface contamination is evident.

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1. Aatrex is 2-chloro-4-ethylamino-6-isopropylamino-s-triazine, Geigy Chemical Corporation.
2. Treflan is a,a,a-trifluoro-2,6-dinitro-N.N-dipropyl-p-toluidine, Eli Lilly and Company.
3. Hyvar X is 5-bromo-3-sec-butyl-6-methyluracil, E. I. du Pont de Nemours and Company.

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MECKEL'S DIVERTICULUM IN AN ADULT WITH MASSIVE BLEEDING

A Case Report

• A rare cause of massive gastrointestinal bleeding in an adult is from an ulceration produced by ectopic gastric or pancreatic tissue found in a Meckel's diverticulum. When such massive bleeding of this origin is seen, it is most often in a much younger age group.

Howard Wilk, M.D.
Zakir Hossain, M.D.

A Meckel's diverticulum or remnant of the vitelline duct is said to be present in about 2% of all postmortem examinations. Most patients with this anomaly live a normal span of life asymptomatically. In a small percentage, its presence may be heralded by serious surgical complications. Statistically most of diverticulae are found in the pediatric age group. Among the serious complications in most of the reported series are: hemorrhage, obstruction, inflammation, and perforation.[1-5] A case report of Meckel's diverticulum with massive bleeding in a 21-year-old white man is reported here.

The patient was a 21-year-old white man, who was admitted to the Delaware Division with the chief complaint of fainting spells on several occasions and passage of tarry stools for three days. Past history revealed he had had a tonsillectomy in childhood and that the surgery was uneventful. Family history was non-contributory.

The patient had been in good health all his life until three days prior to admission when he started having fainting spells, generalized weakness associated with passage of tarry stools per rectum. He had large bowel movements three to four times during the day. He denied any history of a similar attack in the past. He did not give any history of peptic ulcer disease, nausea, vomiting, abdominal pain, hematemesis, melena, weight loss, or change of bowel habits.

His review of systems was within normal limits with the exception of the passage of tarry stools and generalized weakness. The patient was a well-built, well-nourished, alert, cooperative white man in no acute distress.

Dr. Wilk is Senior Attending in Surgery at the Wilmington Medical Center. Dr. Hossain, formerly Chief Surgical Resident at the Wilmington Medical Center, is now Resident in Thoracic Surgery at the Battey State Hospital, Rome, Georgia.

His vital signs on admission showed his pulse to be 128, blood pressure 140/77, respirations 24, temperature 98.4. The sclerae were pale. He did not have any evidence of any lymphadenopathy. Heart and lungs were within normal limits. The abdomen was soft and flat, and no masses or tenderness was noted. Rebound tenderness and muscle guarding were absent. The liver and spleen were not palpable. Bowel sounds were active. Rectal examination showed evidence of tarry stools. No evidence of active bleeding was noted at this time. No mass was palpable in the rectum, and there was no evidence of an extrinsic pressure defect. The clinical impression on admission was gastrointestinal bleeding, cause undetermined.

On admission the CBC revealed a hemoglobin of 5.5 gm with hematocrit 15% and RBC 1.7 million. WBC and differential were within normal limits. Prothrombin time was 80%. Electrolyte studies, including sodium, potassium, chloride, and carbon dioxide, were normal, with the possible exception of potassium, which was 3.4 mEq/liter. BUN was 30 mg/100 cc. Gastric analysis demonstrated total acidity of 60° with absence of free acid.

After admission the patient was given 2 units of whole blood in approximately five hours. His vital signs remained stable throughout this time. He had another large tarry stool in the afternoon, and in the evening his hemoglobin was 5 gm. The patient was given two more units of blood, and the next morning the hemoglobin was 9.5 gm. At that point, sigmoidoscopy was done, and the only finding was dark, clotted blood in the rectum to 16 cms. No evidence of active bleeding was noted. No ulceration, tumor, or extrinsic pressure defect could be found. An upper G.I. series was reported to show a channel ulcer in the region of the pylorus. No other lesion was found in the stomach or duodenum. A gastroenterologist recommended that the patient should be put on a strict ulcer regimen. The Levin tube was removed, and an ulcer regimen was immediately started.

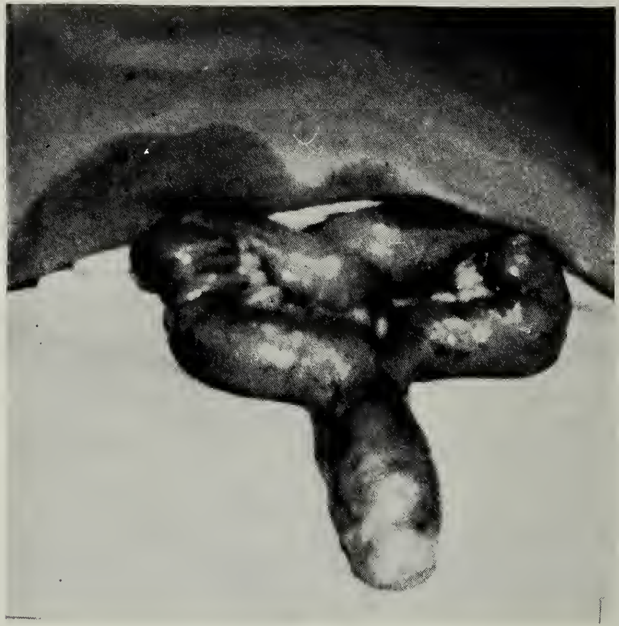

Figure 1

Resected segment of distal ileum with Meckel's diverticulum.

On the second hospital day the patient had a small bowel movement containing dark-colored material. He was given two more units of blood, and his hemoglobin at that time was 11.3 gm., hematocrit 33%. He was tolerating the ulcer regimen well and was given one unit of blood on the third day. His hemoglobin was reported after transfusion as 12 gm. He felt fine. The only significant finding at that point was his pulse rate, which was in the range of 120 to 130 per minute.

On the evening of the third hospital day the patient had three large, mahogany-colored stools and appeared markedly pale. His hemoglobin dropped to 10.3 gm. A Levin tube was inserted, but no blood could be aspirated from the stomach. The Levin tube never drained anything suggestive of blood.

On the fourth hospital day, at 1:30 in the morning, the patient was taken to the operating room, and an exploratory laparotomy was done. The finding during surgery was a Meckel's diverticulum, which measured approximately 6 cm. in length and about 3 cm. in width, located on the antimesenteric border of the distal ileum, approximately 30 inches from the iliocecal valve. The upper G. I. tract was empty and free of blood. The blood was found to be present in the colon and distal ileum. Segmental resection of the ileum, including the Meckel's diverticulum with end-to-end anastomosis, was done. (Figure 1) The pathologist reported a Meckel's diverticulum with ectopic gastric mucosa and pancreatic tissue. (Figure 2) The patient's postoperative course was uneventful.

The complications of the Meckel's diverticulum are infrequently seen in an adult. They become a diagnostic challenge to the physician when they do occur. Bleeding may be manifest by occult blood in the stool and anemia, or hematochezia, with or without shock. When roentgenologic, endoscopic, and other studies fail to reveal a site of bleeding in the esophagus, stomach, or colon, bleeding from the small bowel should be considered. The best single diagnostic procedure available is a detailed roentgen study of the small bowel. Additional diagnostic maneuvers are.$^{5-9}$

1) Retrograde superior mesenteric arteriography.
2) Einhorn and Fluorescein string tests.
3) Aspiration of intestinal contents at various levels after passing a long tube and testing for evidence of blood by
    a) Guaiac of Benzidine testing, or
    b) Injection of radioactive chormium tagged RBC intravenously and then testing intestinal content at various levels for radioactivity.
4) Abdominal exploration during a bleeding episode.

The cause of massive recurrent bleeding in Meckel's diverticulum is most often associated with heterotopic gastric mucosa with or without pancreatic mucosa, producing peptic ulceration in an ectopic location. To locate the bleeding site before operation is often frustrating, and final diagnosis is usually made during surgical exploration. Heteroptic gastric musosa usually leads to bleeding from peptic ulceration early in life, and although the initial bleeding episode may not force operation, recurrent bleeding eventually does. In contrast to its duodenal counterpart, a peptic ulcer in such a vulnerable location as the ileum is not likely to enjoy a permanent remission.

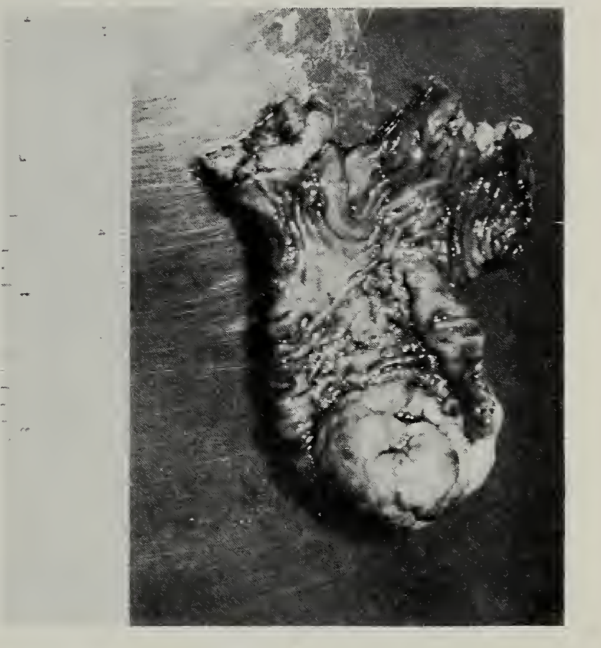

Figure 2
Opened Meckel's diverticulum showing ectopic gastric and pancreatic mucosa with bleeding ulcer in umbilicated base.

Wide segmental resection of the ileum including the Meckel's diverticulum is the treatment of choice. This will insure complete removal of the ectopic gastric mucosa.

In this case both pancreatic and gastric mucosa were found in addition to a bleeding peptic ulceration at the base of the diverticulum. A wide segmental resection of the ileum, including the diverticulum, was done. The initial proper treatment in our patient was delayed by the presence of incidental, asymptomatic pyloric channel ulcer. The patient made an uneventful recovery.$^{5-12}$

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CLIMATOLOGY AND MEDICINE

Article VII

Last of a Series

Lewis B. Flinn, M.D.

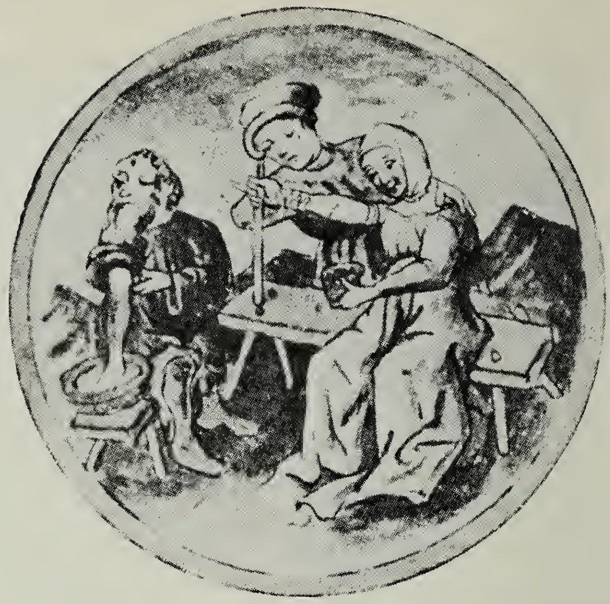

Figure 8

Climate seems to have a definite limiting effect on a number of diseases. Cholera, at times, has been epidemic. From 1832 to 1893 it took the lives of thousands of Americans and was really a public menace. Today it is generally confined to lower Bengal, India, Burma, China and Java. Crowded living conditions and lack of sanitation may be the main factors, but nevertheless it is rarely found north of the 16th parallel. Dengue is largely confined to 33° north and 26° south. Enteric disease is certainly more prevalent in tropical areas. Leprosy seems to occur where people live in close proximity rather than in special climates, although it is more prevalent in tropical areas. Yellow fever is largely confined to the northeast coast of South America, North Africa, Asia Minor, East Africa, and Pakistan, yet there was a severe epidemic in Philadelphia in 1793. Yaws requires a mean temperature of 80°F and usually less than 1500 feet altitude. Poliomyelitis, less common in this country since the institution of vaccine, historically has rarely been found in cold countries or in wintertime. The disease is more widespread in the backward countries, but there is less paralytic polio in these areas, the disease is widespread, and a high degree of immunity is developed with fewer epidemics. Malaria occurs in subtropical and tropical areas. Multiple sclerosis is found mostly in the temperate zones, and there is a strikingly higher incidence in the northern United States versus the South as indicated by mortality statistics prepared by the National Institute of Neurological Diseases and Blindness.

This series of articles (May to November) indicates that climatic change and cyclonic storms may have had a stimulating effect on the progress of civilization, including the development and dispersion of religion and medicine since pre-historic times. Medicine and religion in early history were closely associated. For centuries medicine was dominated, controlled and even practiced by the church. Not until the Renaissance did lay medicine really begin. Luther and Protestantism soon followed.

English medicine became more sophisticated in spite of the gold-headed cane and the period of excessive blood-letting. According to Bettemann[1] this practice was popular each spring. As depicted in Figure 8, "the patient clasps the wooden stick to swell the vein. Man at left soaks skin in warm water to ease forthcoming incision. First barber poles consisted of bloody bandage wrapped around stick

Continued on page 327

Dr. Flinn is Honorary Physician, Department of Medicine, Wilmington Medical Center.

A CASE OF RECURRENT ABRUPTIO PLACENTAE

• Clinical and epidemiological evidence indicates that abruptio placentae may be a disease of malnutrition. This case report details a patient with three previous abruptions who carried successfully to term when her nutrition was improved.

Thomas H. Brewer, M.D.

At the National Maternity Hospital, Dublin, Ireland, four pregnant women were treated for recurrent abruptio placentae during one year.[1] One of these women admitted at 34-weeks gestation with her fifth acute abruption and no fetal heart tones, was delivered of a "fresh stillborn infant." She had a history of four previous abruptions resulting in four perinatal deaths.

There is ample clinical, biochemical, and epidemiological evidence that abruption of the normally placed placenta, with or without an associated metabolic toxemia of late pregnancy, is a disease of *malnutrition.*[2-5] Hibbard of Liverpool has focused attention on folic acid deficiency associated with abruption placentae, but this is not a simple causal relationship. Many women with severe folic acid deficiency have been observed to have no abruptions [4,6,7] and vice versa. However, the value of adequate, maternal-fetal nutrition in the prevention of this serious disease and other nutritional complications of human pregnancy is established and needs to be more widely recognized.[8,9]

Case Report

A 20-year-old, grava 3, para O, was admitted at 34 weeks gestation to the Contra Costa County Hospital, Martinez, California, on August 10, 1968, because of abdominal pain.

Her past history revealed that her first pregnancy had been terminated at eight weeks gestation in 1966 for "psychological reasons." Her second pregnancy was terminated by a Caesarean section done at 34 weeks gestation one year and two days previously in August 1967, for abruptio placentae. This first section was done with delivery of a depressed premature infant weighing 3 pounds, 5 ounces. This infant expired within the first 24 hours of life. During this second pregnancy the patient had made four visits to a county clinic in April, June, July, and August. She had received no dietary education. X-ray pelvimetry had revealed an adequate gynecoid pelvis.

Editorial comments appear on page 339

In the pregnancy presently under discussion, her third, the patient had attended the same county clinic, making four visits in June, July, and August. The only dietary instruction which she can remember was, "Don't gain any more weight!" She had gained 32 pounds by 8/7/68, her last clinic visit before admission.

At surgery 500 ml of clot were found behind the abrupted area of the placenta; approximately 50% of the placental surface was involved. The entire uterus was ecchymotic. A depressed premature infant weighing 4 pounds, 9 ounces, was delivered and expired

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Dr. Brewer is County Physician, Contra Costa County Medical Services, Richmond Health Center, Richmond, California.

at 9 hours of age. The fibrinogen index post-surgery was 330. The patient developed no significant hypertension, proteinuria, edema, nor clinical impairment of renal function. She had an uneventful recovery.

On her fourth post operative day, the patient was asked to "write a high school-type essay about your diet during this pregnancy." The following (sic) is what she wrote:

My Diet During This Pregnancy

> I have *never* eaten well, even in childhood. I've always hated any form of vegetable and only ate it when forced. In 1966 I married into an Italian family and learn to prepare the rich foods I enjoy. After marriage I was never forced to eat therefore I ate little or no vegetables or liver or fish (foods I detest). I would prepare vegetables and salads at my dinner but *I* would never eat them. I fry (deep fat fry) all main dishes, steaks, chicken, chops and other fatting meats.
>
> During this pregnancy (my third) I ate cake, cookies, a little candy, no soda, milk (a lot), baloneys, cheeses, tacos, chile, ravolies, juices, ice, ice cream, a little pepsi and lots of mananaise and tomatoes. Bean soup and bread was a favorite. I also enjoyed sweet rolls, which I ate constantly with milk. I would always awake at 2:00 and 5:00 in the morning and eat cookies and milk or cold ceral. Then went back to bed to sleep. I gained 32 lbs. when I was 8 months, up to the date of delivery.
>
> I also would not take my vitamins. I took little or no excercise and sleep constantly. I was always nauseated and sick at my stomach. If I was hungry and didn't have what I wanted, I didn't eat. I ate toast, jam, and tea for breakfast about 11. At 2 I'd eat sweet rolls, milk, ceral or anything that appeased me. At dinner I ate meat, bread and milk, no salad and not any vegetable. And very little of and anything else. I also enjoy potato chips and peaches. And I never ate much else except greasy foods.

After I had read her essay I told her that her abruptions and dead babies were the direct result of her poor nutrition, of her poor dietary habits. She replied, "If I had known how important a good diet is, I would have eaten better. All they told me in clinic was not to gain too much weight." She was told that she must improve her nutrition prior to any more pregnancies and that she must report early for prenatal care. The basic principle of scientific maternal-fetal nutrition were explained to her at this time.

In December 1968, the patient returned to Contra Costa County Hospital because her last menstrual period had been in October. She was found to be pregnant again and subsequently made 16 visits to the hospital outpatient clinics for prenatal care. During this fourth pregnancy she ate three meals a day. She took standard prenatal multiple vitamin capsules, which also contain trace elements and calcium, and she took iron pills daily. Beginning in February, 1969, she took 5 mg folic acid daily. She had a normal prenatal course with no evidence of anemia, metabolic toxemia, nor of abruption, and in July 1969, the patient was delivered by means of a repeat elective Caesarean section of a healthy female infant. The baby had an apgar rating at one minute of 10 and weighed 5 pounds, 14 ounces. Postpartum course was uneventful, and mother and baby left the hospital in good condition seven days later.

Comment

It is recognized that Caesarean section is not the treatment of choice for abruptio placentae in a patient with an adequate pelvis unless the fetus is near term, has some chance for survival, and can not be delivered vaginally in a short time. However, the main lesson to be learned from this case is that lifetime poor dietary habits which can produce abruptio placentae in one pregnancy may persist, if unrecognized and uncorrected, to produce it in subsequent pregnancies.

This patient had poor dietary habits from childhood. During her two pregnancies complicated by abruptio placentae she did not take supplemental vitamins and minerals. Her nutritional status during the last normal pregnancy was much improved because she was now fully aware of the role of poor nutrition in causing her previous difficulties, which included two Caesarean sections and two low birth weight, premature infants both of whom expired within 24 hours after birth.

Classical prenatal care in the United States has over-emphasized "weight control," dietary restriction of sodium, and the use of saluretic diuretics. These practices are of little real value to the prenatal patient whose dietary habits are poor and whose nutritional status often has been poor for many years prior to pregnancy.

Conclusion

The nutritional status of a prenatal patient can never be taken for granted. Each patient must receive instruction in scientific nutrition as part of her routine prenatal care, and this nutrition education must be reinforced by her obstetrician. Abruptio placentae, with or without associated metabolic toxemia of late pregnancy, is a totally preventable disease in our present state of knowledge. The pregnant patient must be taught the role of scientific nutrition to protect herself and her fetus from such severe complications of pregnancy.

ACKNOWLEDGEMENT

I want to express appreciation to Dr. Walter Carr, staff physician, Contra Costa County Medical Services, Martinez, California, for his thorough and scientific prenatal management of this patient during her fourth and only successful pregnancy.

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* * *

CLIMATOLOGY AND MEDICINE

Continued from page 324

to advertise trade." One of Philadelphia's great physicians, Benjamin Rush, was guilty of excessive blood-letting. Nevertheless he and others around Philadelphia made great strides in the progress of medicine and treatment of disease. The Pennsylvania Hospital, the first in this country, still functions nobly. Has such progress in the light of the previous discussion something to do perhaps with the climate in Pennsylvania as described by Rush[2] in 1809? He stated, "Perhaps there is but one steady trait in the character of our climate, and that is, it is uniformly variable." He states further that "the climate of Pennsylvania is a compound of most of the climates in the world. Here we have the moisture of Britain in the spring, the heat of Africa in summer, the temperature of Italy in June, the sky of Egypt in the autumn, the cold and snows of Norway and the ice of Holland in the winter, the tempest in a certain degree of the West Indies in every season, and the variable winds and weather of Great Britain in every month of the year," and he concludes, therefore, "It is easy to ascertain what degrees of health and what diseases prevail in this State."

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Taken Any Good Pictures Recently?

We are aware that among our doctors there are many good photographers. The Journal would like to establish as a regular feature a page dedicated to photographs taken by physicians: medical subjects, travel pictures, photomicrographs of especial aesthetic or scientific interest, etc., etc. Black and white glossy prints are needed for reproduction; they can be returned if you request. Send us your favorites.

WHITHER TUBERCULOSIS?

• The concept of the treatment of tuberculosis is changing so rapidly that even people in the field have difficulty keeping up, but the latest thought is that cooperative patients who take medication as prescribed very quickly become non-infectious, and can continue medication at home, after a short time in the hospital.

NATHANIEL YOUNG, M.D.

The latest concept in the treatment of tuberculosis is to use the general hospital as the center for acute patient care, and possibly also for outpatient care. Although the National Tuberculosis Association has made some general statements on the subject, no real guide lines have been set. At present it is generally accepted by phthisiologists that a minimum of 1½ to 3 years of drug therapy is necessary, beginning with multiple drugs and graduating to a single drug, usually isonicotinic acid hydrazide (INH). After a few treatments the patient is no longer considered infectious, provided drug therapy is maintained.

There are still unanswered questions regarding criteria for discharge of the patient with tuberculosis from the hospital: may the patient still have a positive smear if only a few acid fast bacilli are seen, or must he be negative on smear and culture? There is a need for a definite statement on this subject by the national authorities for it particularly affects the length of hospital stay and the length of drug therapy. And we must always remember that present tuberculosis drugs are only bacteriostatic and not bactericidal.

As long as the patient is infectious, he remains a public health hazard; as such, his therapy and supervision have traditionally been the responsibility of the public health officer. Will the general hospital accept the problem patient who is recalcitrant regarding his own treatment? If the patient has been treated in a general hospital as an inpatient, and his drug therapy is given and supervised as an outpatient, who pays for his hospital stay and his long term drug therapy? This question is fundamental for the general hospital and equally fundamental for the public health authorities. How long will this type of patient be allowed to stay in the general hospital? Will he remain until he is completely well, or until he is able to get about, or until he is no longer infectious?

If he is infectious in the hospital, what precautions are to be taken for the safety of the hospital staff, other patients, and relatives? I, personally, believe that anyone with a positive tuberculin test has already been infected, and will not be re-infected from another individual. We therefore, have two different problems: (1) the employee with a positive tuberculin test, who needs only the usual precautions of civilization, and (2) the negative reactor, who needs precautions of a specialized nature.

At present, when a tuberculosis patient is in a general hospital, the attitude of the staff varies from acceptance, on the one hand, to treating him as a leper, on the other. We find this to be true now with patients from Emily Bissell Hospital who have been transferred for surgery, and who we are satisfied are not infectious.

It is now time for a great deal of reassessment by both the medical staff and others. I recently read an article on the handling of patients in a general hospital in the Chicago area. Although their patients were said not to be in isolation, they were actually treated

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Dr. Young is Medical Director, Emily P. Bissell Hospital, Wilmington, Delaware.

as "special equipment" cases, with lab supplies and kitchen supplies burned after use in the patient's room. This to me means that the medical staff has not really accepted the mode of transmission of pulmonary tuberculosis as being droplet nuclei in the air, but still believes that transmission is by food, books, etc. I doubt that tuberculosis is ever transmitted to any adult by food, for food would have to be so grossly contaminated as to be unacceptable for use. Why in the past was milk such an offender? Milk could, in fact, be so grossly contaminated with drops of tuberculous pus, hidden by the very nature of milk. We have *never* cultured tubercle bacilli from our hospital dishwashing machine or washed dishes.

What about the acceptance of tuberculous patients by non-tuberculous patients? If our experience (which is based on the advice given to non-tuberculous persons such as prospective hospital volunteers by their physicians) is any criterion, the acceptance is poor. Would-be volunteers are often advised, "for the sake of their children," to avoid a tuberculosis hospital. In other words, their physicians really do not believe tuberculous patients can be handled in a general hospital. A good deal of indoctrination is necessary for both professional and lay persons, including non-tuberculous fellow patients.

Importance of Laboratory

The laboratory is of prime importance to the treatment of tuberculosis. Laboratory personnel must be able to recognize the tubercle bacillus as distinct from other acid fast bacilli, most of which are not pathogenic. This takes time. Cultures must have time to grow, and further selective biochemical tests are then necessary. A small hospital laboratory may have neither the experience nor the facilities to conduct these examinations, so that a laboratory with knowledgeable staff and special equipment is still required. A reference laboratory is necessary, and I suggest that in Delaware the State Laboratory should be used, and must be maintained as a reference laboratory. Some of the newer drugs require special laboratory work, eg, liver function tests, which, of course, are routine tests in a general hospital.

A tuberculous patient becomes acceptable to his fellow patients largely as the result of the attitude and reassurance of the staff. He will undoubtedly welcome the local general hospital as his place of initial treatment as it is most likely to be known to him for other services, medical, surgical or obstetrical, and his own physician will look after him. The facilities available to him are the best locally, whether he needs a herniorrhaphy, appendectomy or the treatment of other problems additional to his tuberculosis. His stay is likely to be shorter, with an earlier return to work and to his family. But there will be still a need for a State Hospital to take care of the problem patient, whether the problem be medical or social. There will still be a need for ancillary services, a reference laboratory, and public health nurses to get people into the clinic, whether it be in a general hospital or at another local center. Someone must help in motivating patient continuation of long term chemo-therapy, and that must be someone who knows the family and contacts, and the patient's general background, apart from tuberculosis.

Consultations Essential

Consultation with the State Board of Health phthisiologists will always be available for diagnosis and management, and will be essential for determination of financial responsibility. Many of the patients will, unfortunately, return to substandard housing and inadequate diet and generally unfit living conditions. Long term supervision will be the responsibility of the Public Health Nurse, who will oversee the patient's continued drug therapy, his regular clinic attendance, and his regular x-ray and sputum examinations, and be able to determine his dynamic status at any particular time. She will also supervise and periodically check the family and close contacts.

It is particularly important that all positive tuberculin reactors be treated, and this is especially so of anyone who had a diagnosis of tuberculosis before the advent of chemotherapy. New cases of symptomatic tuberculosis come from those with a previous diag-

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THE UPS AND DOWNS OF PRIAPISM

• The statement "Everything that goes up must come down" is often refuted by priapism, at least temporarily. Fortunately this condition is rarely encountered, for it is rarely managed without disappointing results. Two cases of priapism are reported, both of which were treated surgically.

David D. Miles, M.D.

Priapism is abnormally protracted penile erection which is usually painful and is not accompanied by sexual desire. While 75% of the cases are of the idiopathic variety, the remainder occur in association with central nervous system disease, sickle cell disease, leukemia and metastatic carcinoma.[1]

Case Report No. 1

A 41-year-old married white man was admitted to the Wilmington Medical Center in February 1969 because of persistent penile erection of six days' duration. Six days prior to his admission he went to bed in a well state and awakened the following morning with his penis in an erected state. He had experienced this on many occasions in the past, but previously the erection had subsided spontaneously after voiding. There was no history of recent trauma or urinary tract infection. Throughout this six-day period he was able to void spontaneously and did not experience much pain. He had had a similar episode in December 1968, which lasted for only three to four hours and subsided spontaneously. Except for a history of alcoholism the remainder of his history was unremarkable. Significant physical findings were limited to the external genitalia. The penis was in an erected state lying parallel to the abdominal wall. No penile lesions were noted. Examination of the prostate was unremarkable as was neurological examination. Laboratory findings on admission included the following: hemoglobin 15.1 gm, hematocrit 45%, WBC 10,500 with a normal differential, prothrombin time 10.5 seconds (control of 11.5 seconds), fasting blood sugar 82 and BUN 9 mg/100 cc. Urinalysis showed 3-5 WBC's per high power field; urine culture was negative.

On the day of admission, under general anesthesia a Foley catheter was inserted followed by needle evacuation of the left corpus cavernosum, resulting in the penis becoming entirely flaccid. The penis was then strapped to the perineal area using a "T" binder. Approximately six to eight hours later the priapism recurred, and penile massage at that time was of no avail in reducing it. On the following day, needle aspiration and irrigation, this time of both corpora cavernosa, were again performed under general anesthesia. The corpora cavernosa were irrigated with low molecular weight Dextran. However, the penis did not assume the flaccid state that it had on the previous attempt, and at this time no attempt was made to hold the penis to the perineal area. Also, the catheter was not now left indwelling as it had been a constant source of pain to the patient and he was now able to void spontaneously. The priapism persisted for the next three days, but by the third day post-aspiration and irrigation it was felt to be less severe. By the fourth day, the penis had assumed a semi-flaccid state. It remained semi-flaccid for the next two days when the patient was discharged home, comfortable and voiding without difficulty.

He was seen in the outpatient clinic one week following his discharge and was noted at that time to be doing well, with a flaccid penis and no recurrence of priapism. Thereafter he was lost to follow-up, but seven months after

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Dr. Miles, formerly Urology Resident at the Wilmington Medical Center, is now in private practice in Tallahassee, Florida.

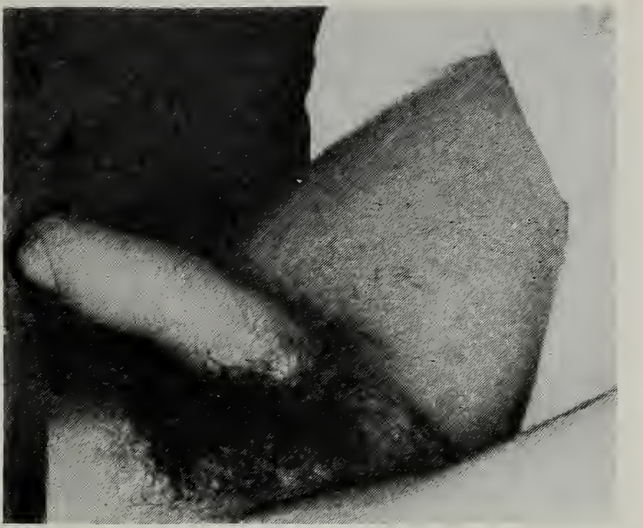

Figure 1

Priapism in case No. 1 pre-operatively. (Note how erected penis lies parallel to abdominal wall.)

his discharge from the hospital it was learned through a telephone conversation with his spouse that he was unable to have an erection.

Case Report No. 2

A 32-year-old Negro man was admitted to the Wilmington Medical Center in January 1969 because of persistent penile erection of twelve to twenty-four hours duration. On the evening prior to the day of his admission he was involved in an altercation during which he was kicked in the genitalia but as far as he could determine did not sustain an injury. He later went to bed in a well state but awakened the following morning with his penis in an erect state which persisted. He gave a history of having had during the past eighteen months approximately twenty episodes of sustained erections lasting approximately two to three hours but always resolving spontaneously. The remainder of his history was unremarkable. He denied any history of sickle cell disease or neurological dysfunction. Pertinent physical findings were limited to the external genitalia; the penis was noted to be in a markedly erectile state, parallel to the abdomen. Examination of the prostate and the neurological examination were unremarkable.

Laboratory findings included: hemoglobin 13.5 gm, hematocrit 40%, WBC 10,600 with a normal differential, platelet count 245,000. Sickle cell preparation was negative and hemoglobin electrophoresis revealed no abnormal hemoglobin present. Urinalysis and urine culture were negative. BUN was 7, fasting blood sugar 100 mg/100cc. VDRL was non-reactive, prothrombin, bleeding and clotting times normal.

At the time of admission, the patient was unable to void, and a Foley catheter was inserted and connected to drainage. Estrogen therapy was started. On the day following admission the priapism persisted, and the consequences of this, both with and without treatment, were explained to the patient. Thereafter bilateral needle evacuation of the corpora cavernosa was performed under spinal anesthesia with subsequent penile softening. The penis was then strapped to the perineum with a "T" binder. Approximately six to eight hours later recurrence of the priapism was noted, and on the following day the patient was taken to the operating room where a right sapheno-cavernous shunt was performed

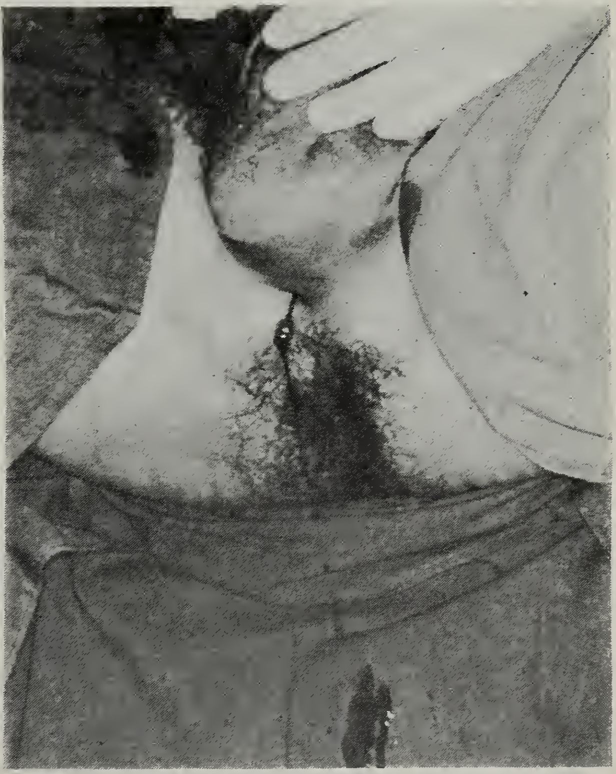

Figure 2

Needle evacuation of corpora cavernosa. (Note drainage of typical "motor oil" sludge from needle — no clots.)

and heparin therapy was started. The penis remained flaccid throughout the remainder of the evening after his operation. At times it would become partially erect, but penile massage resulted in its becoming flaccid, indicating that the sapheno-cavernous shunt was patent. However, on the morning following surgery the penis was once again in an erect state and would not decompress with massage. It was felt that this most likely represented occlusion of the sapheno-cavernous shunt but that a conservative management regimen should be followed at that point rather than an attempt at shunting through the opposite side, primarily because the patient was comfortable and was able to void spontaneously. Approximately twenty-four hours post-operatively the penis was semi-erect but was not of the magnitude that it had been pre-operatively. It was believed that at least some of this represented edema. This semierected state persisted for an additional four days. The patient continued to void without difficulty. His only complication in the post-operative phase was noted to be some serosanguineous drainage from his incision site over the saphenous vein. On the seventh post-operative day the penis was much more flaccid. At the time of his discharge, ten days post-operatively, the patient felt well and the penis was semi-flaccid.

The patient was seen in the outpatient clinic one week following his discharge at which time his penis was flaccid. He was thereafter lost to follow-up because of imprisonment in another state.

Discussion

Penile erection is accomplished by penile stimulation via the pudendal nerve to the lumbar and sacral centers or by psychic stimulation via the diencephalon to the lumbosacral areas. Arterial vasodilation results from the sympathetic stimulation of L2 to L4 and parasympathetic stimulation of S2 to S4. Vasodilation produces filling of the corpora cavernosa spaces that far exceeds the venous outflow, which results in penile erection.

Normal erection subsides following vasoconstriction produced by stimulation of the sympathetic nerve supply. This same stimulation is responsible for the preceding emission of semen.

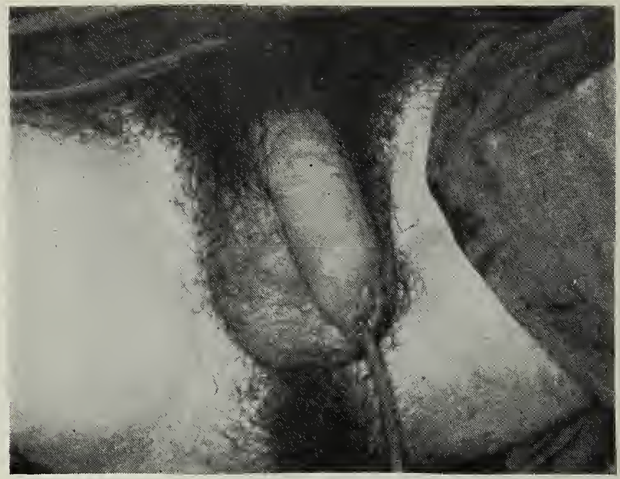

Figure 3
Penis flaccid post-needle evacuation of corpora cavernosa.

Idiopathic priapism can occur by either persistent arterial vasodilation or by persistent venous constriction, which causes stasis of the blood with poor oxygenation leading to sludging.[2] This in turn produces edema of the septa in the cavernous spaces, which further inhibits venous drainage and results in priapism. The development of fibrosis within the cavernous spaces after subsidence of the priapism may prevent subsequent erections.

The best evidence that priapism is difficult to treat is shown by the numerous therapeutic measures, including local and systemic measures, which have been advocated, none of which have met with much success.[3] As stated by Hinman, "The basic reasons for failure of the various treatments are that they do not restore venous drainage nor do they eliminate progressive damage to the local erectile mechanism."[3]

The sapheno-cavernous shunt procedure described by Grayhack et al in 1964 seems to fulfill Hinman's criteria for success especially when employed early in the course of the disease.[4] This procedure is accomplished by anastomosing the proximal portion of the saphenous vein to the ipsilateral corpus cavernosum via a subfascial tunnel. Also the procedure of shunting via the cavernospongiosum route seems feasible, for the same reasons as previously stated.[5] This is done by creating eliptical windows between the corresponding corpus cavernosum and corpus spongiosum, since the corpus spongiosum is not involved in the process of priapism as is the cavernosum. However, before resorting to surgical procedures it is recommended that needle evacuation of the corpora cavernosa be done as described by Harrow.[6]

Time is important in treating priapism if the complication of impotence is to be prevented. For this reason it has been advocated that conservative management be used for only the first twelve to twenty-four hours and thereafter surgical intervention be employed.

Summary

The problems of therapy for priapism are two-fold: 1) to relieve the sustained erection and 2) to permit future erections to occur. Early aggressive surgical intervention is recommended in hopes of meeting both aspects of the treatment problem.

ACKNOWLEDGEMENT

The author wishes to express his appreciation to Mr. George Perry for his efforts in obtaining these photographs.

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WHITHER TUBERCULOSIS

Continued from page 329

nosis of tuberculosis, in whom, for whatever reason, the disease has reactivated, or from the vast number of asymptomatic positive reactors to tuberculin. The children of newly discovered tuberculous patients should all be treated with isonicotinic acid hydrazide (INH) for at least a few months, even if their tuberculin test is negative. In this way, we will prevent the conversion of their negative tuberculin test to positive, and every patient with a positive tuberculin test is a potential future tuberculosis patient.

When we can reduce the number of tuberculin reactors to zero, we will have really conquered tuberculosis.

"Well, would you make a house call if we brought the house over?"

New Yorker Magazine, 1969

Highlights

GRAM-NEGATIVE BACILLARY INFECTION

JOHN A. WASHINGTON, II, M.D. — *Wilmington Medical Center Conference, May, 1969.*

In the recent years the importance of the staphylococcus as an etiologic agent in hospital acquired infection has been largely supplanted by the gram-negative bacilli. A review of nearly 21,000 blood cultures taken at the National Institutes of Health during an eleven-year period revealed that about 9% of the cultures were positive. Twenty per cent were positive with *Staph. aureus* and 38% with *E. coli*, *Pseudomonas* spp, *Klebsiella* spp, and *Proteus* spp. A similar but more recent review at the Mayo Clinic of 13,000 blood cultures revealed about the same percentage of positive cultures. Fifty-five per cent of the positive cultures grew out gram-negative bacilli. *E. coli* was the predominant organism, followed by *Klebsiella* spp and *Pseudomonas* spp. Many other types of gram-negative bacilli have been isolated as well.

A group known as Providence has been isolated with increasing frequency as an opportunistic urinary tract pathogen, particularly from patients with chronic indwelling urethral catheters.

The newer classifications of gram-negative bacilli do not depend primarily, as did previous taxonomic systems, on morphologic characteristics of bacterial colonies but depend rather on results obtained with a variety of biochemical tests. The classification of Enterobacteriaceae currently recognized is that developed by Edwards and Ewing and is as follows:

TRIBE	GROUP
Escherichiae	Shigella
	Escherichia (E. coli, incl. Alkalescens dispar)
Edwardsielleae	Edwardsiella
Salmonelleae	Salmonella
	Arizona
	Citrobacter
Klebsielleae	Klebsiella
	Enterobacter*
	Serratia
	Pectobacterium
Proteeae	Proteus
	Providence

The term Paracolon, consisting largely of late-lactose fermenting varieties, is an outmoded one and has been deleted from the current schema.

More precise classification of the Enterobacteriaceae is achieved by the use of a variety of biochemical tests. With an appropriate combination of several of these tests, better than 90% of the Enterobacteriaceae can be identified in the routine bacteriology laboratory. The laboratory identification is of more than theoretical importance. It may be of epidemiological significance as, eg, in a hospital outbreak of Serratia infections. It may also be of therapeutic importance in that antibiotic susceptibility patterns may vary from group to group. For example, most strains of *Proteus mirabilis* are susceptible to ampicillin, whereas most strains of *Proteus morganii* and *Proteus vulgaris* are not.

In general, the therapeutic agents available for the treatment of gram-negative infections are less satisfactory than those available for gram-positive infections, and the drug of choice may be more effective in vitro than in vivo and thus have a more limited spectrum. Two new drugs, gentamicin and carbenicillin, offer some promise of increased effectiveness, especially in the treatment of pseudomonas infections.

Accurate laboratory diagnosis and classification remain of the greatest significance for epidemiologic study of hospital acquired infections as well as the best possible choice of therapies, and newer laboratory techniques are of great help towards these aims.

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*Formerly Aerobacter

BREAST CANCER

Michael Shimkin, M.D. — *Asst. Vice President, Health Sciences Center, Temple University. WMC, Medical Conference, May, 1969.*

Breast cancer of women is the most common single sex specific cancer and the most common neoplasm in women in the United States. There are approximately 66,000 new cases of breast cancer a year, a rate not significantly changed over the past three decades. The annual mortality from breast cancer is approximately one-half the morbidity; 30,000 women die annually from this disease. Stated in a different way, of all the women in the United States one of 20 can expect during her life to develop cancer of the breast.

Epidemiological data shows that during the decade 1950-1960 there was a slightly increased incidence of breast cancer in Connecticut, associated at the same time with a slightly decreased mortality rate. The latter has apparently persisted although the curve of incidence has levelled off.

There are as yet unexplained epidemiologic puzzles about this disease. For example, Japanese women have a low incidence of breast cancer, and no one knows why. That the disease is hormonally related is well accepted. Women who have been castrated for one or another reason early in life have a decreased incidence of breast cancer so that there is some parallel between total ovarian activity and the occurrence of breast cancer. Women with early menarche and late menopause have a somewhat increased rate over their sisters. As long as 200 years ago Ramazzini stated that breast cancer was "an occupational disease of nuns", and it is true that its frequency is increased in women with no reproductive experience.

Although some malignancies, such as carcinoma of the cervix, have important socioeconomic interrelationship (cancer of the cervix is three times as common in poor women as in affluent women), there is no such relationship for endometrial carcinoma or for breast carcinoma. Nevertheless, there is some evidence to indicate that throughout the world, countries with the lowest average annual income have the lowest incidence of cancer of the breast.

That viruses may be involved in the causation of some cancer of the breast remains an open question. The present evidence is largely morphologic and based predominantly on animal data. Virus particles in mouse and rat breast carcinomas do bear a resemblance to particles sometimes seen in breast carcinoma of the human female.

It is probable that cancer of the breast is actually a group of diseases, different in their natural course. Every clinician is aware of lesions which although small are highly virulent and vice versa; it should be pointed out that the terms "small" and "early" are not synonymous. Examination of natural survival data indicates that approximately 20% of patients with untreated carcinoma of the breast will survive for five years.

The possibility of improving the management of breast cancer at this time is chiefly limited to earlier diagnosis. Interesting and important advances in the diagnosis of cancer of the breast have been made during the past few years. The diagnosis of breast cancer has been pushed beyond the palpating hand by technologic advances, although these advances have certainly not superseded the human hand for the discovery of breast carcinoma. X-ray, mammography (which when it is recorded on xerox paper is referred to as xerography) and thermography are tools with increasing utilization. Dr. Gershon-Cohen was the original pioneer and advocate for the utility of mammography. Several studies for its evaluation have now been completed. Under the Health Insurance Plan program in New York, 30,000 women were examined by mammography every year for 3 years, along with an equal number of paired controls. Mammography was responsible for an increased number of detections in the older age groups, and a higher proportion were without lymph node metastasis at the time of surgery. This proportion was 70% instead of the usual 50% and produced a 25% increase in survival.

Analysis showed that the improvement was due to a combination of mammography and clinical examination, because the favorable patients included not only those found by mammography alone but also those found by palpation alone with negative mammography. Thus, both procedures are necessary. Mammography appears to be most useful in postmenopausal women in whom the increase in fibrous structures makes for increased visual detail. Thermography seems most useful in the younger age groups.

It is important to realize that breast cancer should probably be thought of as a multicentric and bilateral disease. Careful studies of the contralateral breast in women with proven breast cancer frequently reveal abnormal microscopic masses which are also present in other areas of the affected breast. There is a known 6-fold increase in carcinoma of the second breast in women who have had a breast carcinoma diagnosed. It has been suggested, for this reason, that bilateral mastectomy may be the rational surgical approach. Some surgeons are at present biopsying the contralateral breast in the same quadrant as the one in which carcinoma has been found.

Surgery remains the only definitive and possibly curative treatment for breast cancer. The surgical procedure of choice for breast cancer remains the classic Halsted procedure, radical mastectomy, now 80 years old. The main determinant of surgical success is the presence or absence of lymph node metastases at the time the procedure is performed, rather than the specific surgical procedure.

So-called "cure" of cancer of the breast is difficult to evaluate. If mortality curves from other cancers such as cancer of the colon are examined, seven years after diagnosis and surgery the remaining patients have a death risk similar to people matched for age who have never had cancer of the colon. However, with cancer of the breast the risk of death in these patients, even 20 years after their primary surgery, is still greater than that of the general population. In other words, recurrences or second primaries increase the death rate even 20 years after presumably successful surgery for breast carcinoma.

It is important to be able to define unnecessary or damaging therapies in the management of any disease. For example, it is now established that no additional benefits accrue by postoperative administration of nitrogen mustard for lung cancer. Clinical trials are often necessary to substitute fact for opinion in the management of many important diseases. When dealing with a malignancy, one does not compare a treated group with an untreated group, but compares two different treatments with random assignment of patients to one or the other group. No such well-controlled study has yet compared simple with radical mastectomy, although a good study in London has shown "lumpectomy" to be associated with no untoward change in death rate, but an increased rate of local recurrences. Good studies have demonstrated no benefits from the use of thioTEPA postoperatively, except for a possible effect in a small group of younger women with many positive lymph nodes, an effect which suggests that it may be secondary to effects on ovarian function.

Ovariectomy is now considered to be useful only when metastases are present. It is no longer recommended at the time of surgery, especially when the lymph nodes are not found to be involved. Pre- and postoperative radiation has been shown to have little effect on mortality in both American and British studies. Its routine use is, therefore, chiefly for the satisfaction of the surgeon and not for the benefit of the patient. It is certainly useful for the treatment of recurrence and should in fact be the first form of therapy for recurrence since it is superior to available chemical treatments if the recurrence site is accessible. Ovariectomy in premenopausal women with recurrent disease produces temporary benefit in approximateely 25%. A similar temporary benefit is produced by androgen administration to postmenopausal women, but androgen therapy is not easy to endure. Chemotherapy with other agents may be preferable to the use of androgens, if x-ray therapy is not suit-

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President's Page

BETTERMENT OF PUBLIC HEALTH

During the year I serve as President of the Medical Society of Delaware, this page will be used to consider innovative activities by the Society for the "Betterment of Public Health" and to report the accomplishments of working groups, largely the standing and special committees. The Committee Chairmen will be asked to summarize the activities of their committees in order that the physicians will be more knowledgeable of each member's contribution toward comprehensive care for all Delaware citizens.

The response to my letter of September 1, 1969 requesting members to volunteer for service with committees of their choice was most gratifying. The replies indicate that many members of the Society are deeply interested in working with the Medical Society in promoting the art and practice of medicine in planning and providing for optimum care for all Delawareans. Appointments to committees have taken into consideration each member's designated interest, wherever possible.

At this time in Delaware, as in most of the nation, the most pressing health need is an over-all program for delivering medical care that includes every segment of the population through efficient utilization of all medical resources. Several individual physicians, small groups representing professional and lay organizations, the Wilmington Medical Center, and community groups have been considering ways and means of delivering health care to the needy. In fact, one group is about to launch a Pilot Neighborhood Health Facility in a disadvantaged area.

Public Law 89-749 provides funds for State-wide and area-wide comprehensive health planning, and in Delaware the State Board of Health is the single state agency responsible for the program. The Health Planning Council, Inc. has been designated by the Department of Health, Education and Welfare to do comprehensive planning in Northern Delaware. The Governor appointed a State Health Planning Council of 17 members (including only two physicians) to advise and assist the State Board of Health.

The present law (89-749) provides only for recommendations when the study is complete. There are no powers of enforcement; however, there is no assurance that this will always be so. Some thoughts have been entertained in Congress that if enacted into law would give the planning agency broad powers in the implementation of recommendations. For this reason the medical profession must take a role of leadership in any area-wide health planning proposal. It is imperative that medical leadership begin now since the Comprehensive Health Planning Act could become one of the most far-reaching programs in history.

Certainly the responsibility for adequate health care of the half million people in Delaware must be borne by the physicians who are the basic providers. Only a limited number of physicians have been included in planning programs to date, but many more must participate if the physicians are going to be included in implementation of a plan of their choice. It seems logical that the physicians should work through their own corporation, the Medical Society of Delaware. I hope the Medical Society of Delaware can solicit the efforts of most of its members in bringing together all individuals and planning groups into a task force to work with the State Board of Health's Comprehensive Health Planning Council headed by W. O. LaMotte, M.D. and the Health Planning Council, Incorporated in providing a truly comprehensive health plan for Delaware. The Executive Director of the Medical Society of Delaware would like to hear from every physician interested in entering into the planning effort.

Henry H Stroud

Delaware Academy of General Practice

ACADEMY MEMBERS SHOULD SUBMIT MEAD JOHNSON AWARD CANDIDATES NOW

Awards of $1,200 each will go to twelve outstanding young physicians planning careers in the general or family practice of medicine. These doctors will be the winners of the 1970 Mead Johnson Graduate Training Awards.

All Academy members are urged to promote this program in their own communities and encourage likely candidates to apply. Applications *must* be submitted by February 1 to the Committee on Mead Johnson Training Awards, American Academy of General Practice, Volker Boulevard at Brookside, Kansas City, Missouri 64112.

Winners will be selected by the Committee in March and announced at the State Officers' Conference in April. Each $1,200 award will be divided into monthly payments during the winner's year of graduate training and must be used for the academic year awarded.

Physicians eligible are interns, first-year residents or physicians in military service who are U. S. citizens and plan to enter general or family practice in this country.

Applicants will be judged on scholastic attainment, qualifications for general or family practice and need of financial assistance to continue training. Need for funds will become a determining factor when other qualifications are equal.

Candidates must submit to the Committee a formal application, accompanied by a 4 x 6 inch commercial photograph. In addition to information submitted by the applicant, the Committee will request a recommendation from: the dean of the medical school from which the candidate was graduated; the chairman of the intern committee, chief of the general practice residency program or commanding officer in the military service — whichever applies to the candidate's status; and an Academy member.

Members of the Mead Johnson Committee of the Delaware Academy of General Practice are Henri Wendel, M.D., Chairman, Costas Terris, M.D., and Dene T. Walters, M.D.

* * *

A special meeting of the Delaware Academy of General Practice will be held at the Academy of Medicine at 8:30 p.m., December 2, 1969. Everyone is urged to attend.

* * *

Mark your calendar for the 18th Annual Scientific Assembly, March 14, 1970.

HIGHLIGHTS — BREAST CANCER

Continued from page 336

able. Five-fluorouracil (5-FU) may produce remissions in close to 50% of women with recurrent breast cancer. It now seems preferable to use intermittent weekly doses of 5-FU rather than high loading doses, with consequent greatly decreased toxicity. Although these measures may not significantly increase the length of life, they do increase the effective, comfortable life of the patients.

In summary, the best therapy for cancer of the breast remains surgical resection. The secret of control of this disease is early diagnosis. X-ray, mammography and thermography are of definite help in early diagnosis. Etiologic studies eventually may help prevent the disease, but the true etiology of breast cancer still eludes us. We must, therefore, use our presently available tools to their best advantage.

Editorials

MALNUTRITION AND PREGNANCY

Our knowledge of nutritional requirements during normal pregnancy remains limited. World Health Organization (WHO), both by its accumulation of statistical data and by reporting investigations in nutrition, has defined areas for concern and methods for improvement. The obstetrical ills of abortion, toxemia, placental abruption, fetal abnormalities, prematurity and low birth weight have all been partially attributed to malnutrition. Similarly incriminated is the role of maternal malnutrition in growth, developmental and mental retardation problems in infants, even when the diets of those infants after delivery are adequate. When the infant endures malnutrition, the effects can be truly devastating.

In 1967, a committee serving under Lyndon Johnson dramatized the relatively poor standing of the United States in neonatal mortality and morbidity statistics. Perhaps no nation in the world has a population more heterogeneous. Sharp differences exist in income levels, medical care, hygiene and nutrition. Those factors that make bad diets and bad nutrition wreak a heavy perinatal toll in a rural Mississippi, a Harlem, or an inner-city Wilmington. Protein, vitamin and iron deficiencies, and in some cases even caloric deficits, abound in large numbers of obstetrical patients in a given community.

In our local hospitals iron deficiency anemia was common among our clinic population ten years ago. Today we see little iron deficiency anemia among registered prenatal patients, either clinic or private. Hopefully, all of these patients are not only receiving prenatal vitamin supplements and additional ferrous salts (not just the insufficient quantity of iron contained in the prenatal vitamin itself), but also enjoying a better overall diet during pregnancy. The controversy regarding folic acid inclusion in prenatal supplements, at the risk of masking evidence of primary pernicious anemia, has been resolved. Today, practically all prenatal vitamins contain 0.1 to 0.3 milligrams of folic acid, and megaloblastic anemia has literally disappeared among patients receiving prenatal vitamins and supplemental oral iron.

Unfortunately, iron deficiency anemia still exists in a substantial proportion of the obstetrical population of Northern Delaware. Inadequate nutrition and iron deficiency anemia are frequently associated. A high proportion of obstetrical patients who are unregistered, or who attend only one small prenatal clinic, do not routinely receive supplemental iron throughout pregnancy nor adequate dietary instruction. This group of patients is disproportionately afflicted with the common obstetrical complications including toxemia, placental abruption, premature labor, low birth weight infants, and increased abortion. No one knows for certain the adverse effects on their offspring.

Aside from harm to the fetus, the effects of pregnancy on the malnourished mother can be devastating. Doctor Bayard Carter, Professor Emeritus of Obstetrics and Gynecology at Duke, addressing the Southern Ob-Gyn Seminar at Asheville, North Carolina, in September, emphasized the role of poor nutrition in toxemia, correlating the higher incidence of toxemia in lower socio-economic groups. In addition, Doctor Carter feels that the natural physiological process of pregnancy is a very serious disease in the malnourished woman. Development of toxemia of pregnancy in such a patient, in his opinion, imposes another disease upon a preexisting, and already serious, disease.

In the United States, it would seem that the problem of nutrition in pregnancy must be approached from two directions: (1) Appropriate prenatal care of the individual with adequate dietary instruction, appropriate vitamin supplementation and routine administration of ferrous salts and folic acid. (2) The more complex problems relating to nutrition must be encountered in the community and dealt with socially, educationally and economically. Malnutrition of the pregnant woman and her offspring represents a most serious public health problem.

The latter requires educating pregnant patients and potentially pregnant patients regarding diet and nutrition, and making available sufficient calories, protein and dietary supplements. In addition, appropriate prenatal care must be available, and utilized by the entire obstetrical population, whether provided by private practitioners or institutional clinics.

The grim realities of world poverty and hunger and kwashiorkor may be beyond the capability of the United States to correct. However, adequate medical care and nutrition for every American pregnant patient and every child should be a national goal.

William D. Johnson, M.D.

STATISTICS FROM THE PARENTHOOD PLANNERS

There are still some to whom the concept of planned parenthood is anathema. Without meaning to disturb them, we would like to present for your consideration the following set of data which we abstracted from a recent letter by Margaret Meade on behalf of Planned Parenthood and World Population Council. Because of Dr. Meade's professional reputation as an outstanding anthropologist of acclaim we are repeating her data without references.

In the USA there are, she says, 5.3 million women in the fertile age group of 18 to 44 who are poor. Probably 10% of them are infertile, and another 15% are pregnant or want to be. By our best estimates, only 700,000 of these women are being advised regarding family planning, including one-third by Planned Parenthood Affiliates (Delaware's chapter counseled 6300 patients last year) and the others by various hospital, health clinics, etc. That leaves something over 4 million unprotected or seven of eight of the women at risk.

India's present population is 300,000,000 of whom 50% are unemployed. This population is increasing at the rate of 300,000 citizens a year. Could this situation or one approaching it happen to us? It could.

Although family planning advice by Planned Parenthood Leagues is not limited to those with a low income, it is the main source of such advice available to the poor. Delaware's number of medically indigent women is estimated to be around 15,000 of whom probably 13,500, although fertile, have no further children. League nurses visit every ward patient who delivers at the General Division of the Wilmington Medical Center and also work in several Wilmington neighborhoods at family planning clinics held in neighborhood churches or other centers. At Kent General Hospital and at State Board of Health Well Child Clinics downstate, family planning clinics are held in association with the State Board of Health.

Contraceptive prescription is given at her own request to any woman over 18; unmarried girls younger than 18 require parental consent even if they are already mothers.

But only one-fifth of American hospitals with large maternity services presently provide family planning services for their patients. And since many who study these matters consider the population explosion as big a threat to mankind as its technological advances this is probably an important hiatus in medical services available nationally.

Since last fall, the State Board of Health has begun to assume fiscal and administrative responsibility for Delaware's family planning clinics, making use of $100,000 of state funds and a $150,000 federal grant. Within five years the Board of Health plans to have taken over the operation of all the existing family planning clinics, which will enable the Planned Parenthood League to direct its attention to research, training, education, and demonstration projects. It seems terribly important work to us.

B. Z. P.

AIR POLLUTION

The recent action of the Water and Air Resources Commission in adopting a set of standards for air quality is to be viewed as a start rather than as an ending to the fight for clean air. The standards in general meet the criteria set forth by the U. S. Department of Health, Education and Welfare, and if they are enforced should remove some of the hazards to health from air pollution. The standards, however, cover only particulate matter and sulfur oxides. Serious pollutants such as nitrous oxides, ozone, carbon monoxide and hydrocarbons are completely ignored. Presumably, we are to breathe only that portion of the air covered by these standards.

Letters to the Editor

To the Editor:

The October Journal carried this filler on page 315: "The old saying, so constantly and so blindly repeated, that the exception proves the rule, is as destitute of truth, as it is of meaning. Such an exception can prove only one thing, and that is, that the rule is not fully understood, or completely ascertained." *Elisha Bartlett, Philosophy of Medical Science, Pt. I, Ch. 3.*

In my opinion, the old saying, so constantly and so blindly repeated, that the exception proves the rule is as truthful as it is meaningful. When used in this context, the word "proves" implies a *test* of the rule rather than a proof of the rule. Thus, any exception to a standard acts as a test of the validity of that standard.

CARL I. GLASSMAN, M.D.

To the Editor:

I am hopeful that your editorial, *The Tuberculin Tine Test: Easy, Cheap and Important,* in the September Journal will encourage all physicians in Delaware to use the tuberculin skin test as a tool in the care of their patients. I am totally committed to the procedure of prophylactic INH therapy for all reactors who have never previously received chemotherapy and feel that this will do more towards eliminating tuberculosis from our community than any other program that has ever been proposed. Thank you for your support and your interest in the State Board of Health's Tuberculosis Control Program.

EDWARD F. GLIWA, M.D.
Deputy State Health Officer,
Delaware State Board of Health

To the Editor:

I thought you might like some more medical abbreviations (see Editorial, *Who's SOB?* June 1969) which are frequently used in England but which I have not seen in this country.

MAAN and MAAAN are used to mean "Much Ado About Nothing" and "Much Ado About Almost Nothing." Also of interest, considering the current international gold crisis is that what is called here "gold bricking" is referred to in Great Britain as "lead swinging," sometimes written in its Latin form as "plumbum oscillans."

JOHN HOGAN, M.D.

* * *

EDITORIALS

Continued from page 340

The problem now is to ensure that we at least get what is promised. It is obvious that if monitoring is inadequate and personnel are poorly paid and poorly trained, the air will be no cleaner in the future than it is now. Since even with efficient enforcement it will take time to reach the levels set forth in the new standards, efforts should not be wasted in trying to secure more stringent levels at this time.

What we need now is an expert in air pollution control who can represent the interests of the citizens of this State, an individual with training and experience who can act as a watchdog over the activities of the Commission and its Advisory Committee. There is a timetable set by HEW, but the performance of that Department on other aspects of air pollution such as control of emissions by automobiles does not generate much confidence in its desire or ability to secure clean air.

For the present, until we get such an individual, the Medical Society of Delaware should insist that frequent reports be submitted to the Committee on Environmental and Public Health. This Committee should maintain an ongoing surveillance, should investigate the adequacy of monitoring and of personnel, and should insist that the Legislature provide adequate funds to accomplish our objective — air that is fit to breathe.

The health of the people, sick and well, must be protected, and the medical profession has a clear responsibility to raise its voice in this matter. *L.P.L.*

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NOT EVEN THE DOG-KILLER

Not even a dog-killer can learn his trade from books, but only from experience. And how much more is this true of the physician! The art of medicine cannot be inherited, nor can it be copied from books.

Paracelsus, Selected Writings, Pt. II (tr. by Norbert Guterman)

In Brief

Speakers on "Ask the Doctor"

Speakers for December, 1969, on the Tuesday radio program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: December 2, William J. Holloway, M.D., *Strep Throat;* December 9, Edward M. Krieger, M.D., *Heart Disease, Cause and Treatment;* December 16, David A. Levitsky, M.D., *Pneumonia;* December 23, Alfred E. Bacon, Jr., M.D., *High Blood Pressure;* December 30, Thomas E. Dyer, M.D., *Indications for RhoGAM.*

Short-Term Training

The Laboratory Consultation and Development Section of the National Communicable Disease Center is compiling a list of organizations which offer short-term training for persons working in clinical and public health laboratories. When completed, the list will be made available to all individuals interested in continuing education for medical laboratory personnel. The compilation will serve to alert training coordinators, supervisors and prospective students to the existence of many little-known sources of short-term training, some at no cost to the student. For information write: Mr. John H. Krickel, Education Specialist, Laboratory Division, National Communicable Disease Center, Atlanta, Georgia 30333.

In the News

Lawrence C. Morris, director of the National Association of Blue Shield Plan's Professional Relations Department, has been elected Vice President for Planning and Programming, by the Board of Directors. Mr. Morris was formerly executive secretary of the Medical Society of Delaware for 10 years.

Kurt Anstreicher, M.D., has been appointed superintendent of the Delaware State Hospital.

David J. Reinhardt III, M.D., of Lewes has been elected to the board of directors of the American Heart Association at the association's annual meeting in Dallas. He now is chief of cardiology at Beebe Hospital. He served as president of the Delaware Heart Association from 1961 to 1963, and also has been a governor for Delaware in the American College of Cardiology.

Heart Valve Discovery

Alfred E. Bacon, Jr., M.D., Chairman of the Board of Directors of the Delaware Heart Association announced that a Tulane scientist has proved the existence of a rich supply of nerve fibers in human heart valves, which provides a model to study just how fast nerves regenerate in transplanted hearts. Findings indicate that the valves are not composed of passive leaflets or flaps which open and close only in response to the rhythmic changes in the flow rate of blood through the heart chambers, but that they communicate through nerves with the brain.

The evidence uncovered through an elaborate sequence of animal trials suggests that the nerves in the valve flaps serve as sensing centers — perhaps to measure blood flow properties and to flash this information to the brain. It may be, then, that the brain sends regulatory signals based on this information to other heart control centers in the brain stem and spinal cord. Detailed research has begun in these fields.

The Month in Washington

Medicredit

An American Medical Association spokesman, Dr. Russell B. Roth, outlined the AMA's voluntary national health insurance plan, "Medicredit", for consideration by the House Ways and Means Committee. He said the plan, which would be financed in part by federal income tax credits, is flexible and would assure all Americans of adequate health care protection. He estimated the program would cost the federal government $8 billion to $9 billion a year, but about $3 billion a year of that would be offset by liquidation of the Medicaid program. Medicare would continue.

"It would give to persons who have purchased comprehensive health insurance the option of receiving a tax credit on their annual federal income tax return, a credit based on their tax liability. That is, a taxpayer could take as a credit against the amount of income tax owed to the federal government, all or part of their personal cost for comprehensive health coverage. Persons or families with a lower tax liability (usually reflecting lower income or more dependents and allowable expenses) would receive a greater tax credit. And those families in the lower 30% income range, would, without cost to them, receive a certificate enabling them to purchase health coverage from qualified groups or plans."

Self-employed Physicians Now Insured for Disability Under Social Security

Many self-employed physicians reached an important social security landmark this October. With their earnings covered since 1965, they have now contributed to social security long enough to be insured for disability.

Social security disability benefits can be paid to an insured person under 65 who has a physical or mental impairment so severe as to keep him from doing any substantial work for a year or longer. Payments begin after a waiting period of 6 full calendar months.

Benefits can be as much as $218 a month for a disabled person alone and up to $434.40 a month for a family. Self-employed physicians disabled in the immediate future, however, would probably not yet be eligible for these maximums since their earnings have been covered by social security for a relatively short time. Benefits are figured from a person's average covered earnings over a period of years.

Diet Booklets

A new booklet, *Programmed Instruction for Fat-Controlled Diet, 1800 Calories*, designed to ease demands on the time of physicians, dietitians, nutritionists and nurses by helping patients to better understand the principles of the heart-helping diet, has been published by the Heart Association. This is to be used in conjunction with the Heart Association's publication, *Planning Fat-Controlled Meals for 1200 and 1800 Calories.* Both booklets must be prescribed by a physician. Copies of the publications are available without charge to professional personnel concerned with diet through the Delaware Heart Association.

Clinical Center Study

The cooperation of physicians is requested in the referral of patients for a study of the efficacy of myocardial revascularization for the treatment of coronary artery disease being conducted by the NIH at the Clinical Center, Bethesda, Maryland.

Any patient below 60 years of age, with severe angina pectoris, will be considered. Each patient will have a complete diagnostic evaluation, including cardiac catheterization and coronary angiographic studies. If indicated, operative intervention will then be offered.

Physicians interested in having their patients considered for this project may write or call: Stephen Epstein, M.D., Clinical Center, Room 7B-15, NIH, Bethesda, Maryland 20014.

CLINICAL NOTICES AND MEETINGS

Dermatologists Annual Meeting

The American Academy of Dermatology will hold its 28th Annual Meeting December 6-11 at the Americana Hotel in Bal Harbour, Florida. For information write: American Academy of Dermatology, 2250 Northwest Flanders Street, Portland, Oregon 97210.

American Society of Anesthesiologists

The College of Physicians and Surgeons of Columbia University will present Advances in Clinical Anesthesiology, December 13 in New York City, and the New York State Society of Anesthesiologists will present the Twenty-Third Postgraduate Assembly in Anesthesiology, December 15-17, New York City.

New Orleans Course

The 6th Annual New Orleans Course: *Pulmonary Function in Health and Disease,* will be held at Louisiana State University School of Medicine Auditorium, New Orleans, Louisiana, December 8-11, 1969. For information write: Louisiana Thoracic Society, 305 Baronne Street, New Orleans, Lousiana 70112.

Seminar on Social Problems

Social Problms in Obstetrics and Gynecology will be the subject of a two-day seminar at the Jefferson Medical College of Thomas Jefferson University on December 5-6, 1969. Emphasis will be on the gynecological problems of adolescents, family counseling, and experiences with a therapeutic abortion committee. Advance registration for the symposium (fee $40) may be made through John H. Killough, Ph.D., M.D., Associate Dean, Jefferson Medical College, Philadelphia, Pa. 19107.

ACP Courses

The following courses are announced by the American College of Physicians:

Medicine and Law, January 2-4, 1970, University of Southern California Institute of Psychiatry and Law, Los Angeles, California.

Function and Dysfunction of the Gastrointestinal Tract, January 2-6, 1970, Bal Harbour, Florida. Martin H. Kalser, M.D., Professor of Medicine and Physiology (Gastroenterology) at the University of Miami School of Medicine, is course director.

Practical Approach to Selected Clinical Problems, January 26-29, 1970, Ochsner Medical Foundation, New Orleans, Louisiana.

Respiratory Care and Physiology

Advances in Respiratory Care and Physiology, sponsored by the University of Miami School of Medicine and the University of Florida College of Medicine will be held January 8-11, 1970 at the Eden Roc Hotel, Miami Beach, Florida.

Medical Seminar Cruise

The Albany Medical College will conduct its eleventh Medical Seminar Cruise, January 5-22, 1970. Ports of call include Virgin Islands, Martinique, Barbados, Trinidad, Venezuela, Netherlands Antilles, Dominican Republic and Haiti. The comprehensive shipboard postgraduate program will cover subjects in medicine, surgery, pediatrics, obstetrics and gynecology. For information write: Department of Postgraduate Medicine, Albany Medical College, Albany, New York 12208.

PG Courses A. A. of Allergy

The American Academy of Allergy will present a two-day Postgraduate Course in connection with its 26th Annual Meeting, February 14-18, 1970, to be held at the Jung Hotel in New Orleans, Louisiana. Pulmonary Diseases and Asthma, Developments in Medicine Relating to Allergy, Clinical Immunology and Organ Transplantation will be featured subjects. For information write: The American Academy of Allergy Executive Office, 756 North Milwaukee Street, Milwaukee, Wisconsin 53202.

The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

DRUG ABSTRACTS*

ISUPREL — Possible Allergic Reaction

A 48-year-old man developed hoarseness, with marked injection of the pharynx and soft palate, following repeated, frequent use of Isuprel Hydrochloride (isoproterenol hydrochloride) by inhalation (Isuprel Mistometer). The patient had previously used the drug intermittently without difficulty. A skin test to isoproterenol was positive. Six months after the initial reaction the patient was challenged with the drug. A marked erythematous reaction occurred within ten minutes after nebulization.

Warth, J. and Rappaport, A. (Albany, N. Y.), JAMA 209:417, July 21, 1969.

NEOMYCIN — Ototoxicity

A 24-year-old paraplegic man with osteomyelitis of the hip was treated surgically and, postoperatively, by intermittent irrigation of the wound with 0.5 per cent neomycin and 0.1 per cent polymyxin solutions, 80 ml being instilled every four hours and returned by continuous suction two hours after each instillation. After two weeks the amount of solution used for irrigation was reduced to 40 ml. every four hours. About three weeks after treatment was begun, the patient complained of tinnitus bilaterally.

Neomycin was immediately stopped. One month later an audiogram showed bilateral sensorineural loss for high-frequency tones. Within *10 months of the cessation of neomycin irrigations*, the hearing impairment had progressed to *89 per cent loss in the left ear and 100 per cent loss in the right ear*, rendering hearing acuity nonfunctional for purposes of communication. This case emphasizes that neomycin-induced hearing loss can occur following irrigation of a granulating wound with a "topical" neomycin solution and progressively deteriorate for days, weeks, or even months after withdrawal of the drugs.

Kelly, D. R. et al. Ohio State University, NEJM 280: 1338, June 12, 1969.

ORAL CONTRACEPTIVES
Thromboembolic Disease

This study, a sequel to one published approximately one year ago, strengthens the belief that oral contraceptives are a cause of venous thromboembolism and cerebral thrombosis. Of 84 patients with deep-vein thrombosis or pulmonary embolism, 42 (50 per cent) had used oral contraceptives during the month preceding the onset of illness, while only 23 of 168 controls (14 per cent) had done so. No differences in risk were found either for the types of preparations or for the duration of use. Of 19 patients with cerebral thrombosis, 11 (58 per cent) had been using oral contraceptives, compared with an expected figure of 3.5 from the experience of the control subjects. From clinical, angiographic and postmortem data it is evident that the thrombosis affects the cerebral arteries rather than the cerebral veins. There was no evidence that oral contraceptives cause coronary thrombosis.

Vessey, M. P. and Doll, R.: Univ. Col. Hosp. Med. Sch., London, Eng., British M.J. 2:651, June 14, 1969.

PENTAZOCINE — Possible Addiction

During a three-month period four patients were observed who were apparently addicted to pentazocine (Talwin, Winthrop). Daily doses ranged from 135 to 960 mg at the time of admission to hospital. The patients had been unsuccessful in stopping the drug because of servere withdrawal symptoms. In hospital, withdrawal symptoms started 12 hours after the last dose of pentazocine and consisted of sweating, tremor, severe chills, muscle cramps, abdominal cramps, nausea, vomiting, itching, and rhinorrhea.

Schoolar, J. C. et al: Texas Research Inst. Mental Sci., Houston, Texas, Lancet. 1:1263, June 21, 1969.

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*This is a monthly series of drug information abstracts gathered from current articles and prepared by the pharmacists with the purpose of alerting you on drugs and/or their complications.

THE FORUM

Environment And Health

MAN, ENVIRONMENT AND CANCER

T. Y. Kuon, M.D.

Exposure to chemical pollutants, internal and unnatural stimuli, overcrowding, the pressures of automated work and the paradoxical stresses of economic affluence give rise to various human illnesses such as cancer. A human being tends to adapt to an unfavorable environment, but environmental effects often appear later in overt illness.

Medical science will continue to develop useful techniques for treating human illnesses. But many of these conditions need not occur in the first place if we realize the crisis of man in his environment and if we become dynamically involved in dealing with these problems.

A recent American Cancer Society report points out that more than 16 percent of all deaths in the U.S. are caused by cancer, and the number increases steadily. More than 900,000 Americans will be treated for cancer yearly, and more than half of them will be newly diagnosed cases.

Recent studies have shown that cells which can grow as cancer behave as if they arise from normal cells by genetic transformation. The malignant change can be induced deliberately by applying carcinogenic chemicals, oncogenic viruses, ionizing radiation, etc. We are all sometimes accidentally exposed to similar agents in the environment of earth, water and air which surrounds us. These often formidable environmental hazards may seem harmless when we are exposed to them, only to produce cancer later in life.

Published clinical examples illustrate the point. Epidemiologists found an apparently excess number of deaths in certain geographic areas and noted that neuroblastoma was most often diagnosed in the first year of life. The observation suggests an environmental factor affecting children before birth. Another report, on stomach cancer in Iceland, revealed that mortality was highest among farmers, lowest among white-collar workers, a diffenence probably reflecting a relationship between stomach cancer and dietary differences — in this case, a relationship between cancer and eating home-smoked food. In Taiwan, a clear close-response relationship was established between the frequency of skin cancer and the arsenic content of well water used in different villages. And, of course, the whole world is familiar by now with the high incidence of leukemia among survivors of the Hiroshima atomic explosion and the frequency of lung cancer among cigarette smokers. The effects of pesticide dusts and sprays suspected to have teratogenic and mutagenic qualities are under investigation. Preliminary animal studies have indicated that there are many, many more environmental cancers.

Identification and control of the environmental factors involved in cancer and prevention wherever possible are better than our inadequate attempts to cure it. To control the causes of cancer is to prevent it, and to prevent it is a major human goal. The mortality and morbidity statistics of cancer are, after all, more than mere large numbers; they are an index to national economic and intellectual loss, to social dislocation, and to human sorrow.

Tomas Kuon, M.D. is the recipient of a Fellowship in Oncology from the American Cancer Society.

This page is sponsored by the Delaware Tuberculosis and Health Society

Delaware
Medical Journal

DECEMBER, 1969
NUMBER 12
VOLUME 41

EVALUATION OF SUPPORT HOSE FOR WOMEN IN TREATMENT AND PREVENTION OF EDEMA

ARTHUR J. HEATHER, M.D.

The use of sheer, cosmetically acceptable support hose containing elastomeric yarns deduces swelling and pain in the legs of women suffering from edema. Hospital tests on women patients also demonstrates that support hose brings relief or prevents ensuing conditions of phlebitis and other venous inflammatory diseases.

Edema and complications such as phlebitis and stasis ulcers may develop in patients confined to bed or wheel chair for prolonged periods by disabilities such as cerebral vascular accidents or fractures in the lower extremity. Thrombophlebitis and other complications frequently develop in chronically disabled patients.

The use of surgical support hose or elastic bandages is a well recognized means of reducing or preventing edema and associated venous inflammatory diseases. However, most women, regardless of age, find surgical support hose or elastic bandages cosmetically unacceptable and refuse to wear them. Male patients seldom object to such elastic supports because they are concealed by trousers.

The refusal of females to accept currently available elastic leg supports demonstrated a need for cosmetically acceptable support hose. In recent years, the development of fine gauge spandex elastic fibers has brought commercial brands of attractively sheer support hose to the market place. The broad purpose of this research was to assess the potential health benefits available through the use of cosmetically acceptable support hose. In this study, several commercial brands of sheer hose containing spandex elastic fibers were tested on women patients who had developed peripheral edema and secondary venous complications. The effectiveness of the support hose was evaluated by the extent of pain alleviation and by the reduction of leg volume or swelling.

Experimental Details

Foot and leg volumes of twelve women patients were measured prior to treatment. The women ranged in age from 31 to 93 years with an average age of 62. All suffered in various

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Dr. Heather is Medical Director, Delaware Curative Workshop, Inc. Wilmington, Delaware.

TABLE I

LEG AND FOOT VOLUME CHANGES ON TREATMENT WITH COSMETIC SUPPORT HOSE

Subject	Age	Diagnosis	Days Hose Worn	Leg and Foot Volume, ml			Calf Circumference, inch			Comments	
				Initial	Final	Change	Initial	Final	Change	Before Treatment	After Treatment
A	79	Left Hemiplegia-Cerebral Thrombosis	41	4700	3630	-1070	15 1/2	13 5/8	-1 7/8	Leg heavy and aches.	Leg feels good.
B	64	Fracture Right Hip	22	4050	3385	-665	14 3/8	13	-1 3/8	Leg aches and pains	No complaint
C	31	Diabetes Mellitus. Post Phlebitis, Pregnant	53	3975	3500	-475	16	15	-1	Legs ache and tire easily.	Less aching and tiredness.
D	74	Generalized Weakness Following Kidney Infection	28	3385	3100	-285	12 1/2	12 3/8	-1/8	Legs ache.	Less aching.
E	72	Post Phlebitis.	13	4185	3900	-285	14 3/8	14 3/8	0	Legs ache and tire easy.	Improved
F	64	Compound Fracture Left Femur Lacerations Calf Muscles.	8	3710	3400	-310	13 5/8	13 1/4	-3/8	Legs ache and are heavy.	Legs feel better.
G	64	Post Fracture, Left Ankle	7	3660	3620	- 40	13 7/8	13 3/4	-1/8	Leg aches and is heavy.	Less aching.
H	93	Left Above Knee Amputee Arteriosclerotic Peripheral Vascular Disease	31	3840	2900	-940	14 1/4	13 7/8	-3/8	Leg hurts all the time.	Much improved.
I	47	Post Deep and Superficial Phlebitis	18	3415	3250	-165	14 7/8	14 1/4	-5/8	Legs swell and ache.	Less swelling and fatigue.
J	51	Post Phlebitis	59	3825	4140	+315	15	15 1/8	+1/8	Legs ache. ACE bandages made ridges and cause itching.	No itching.
K	76	Post Phlebitis, Stasis Ulcer	7	3390	3320	- 70	14	13 1/4	-6/8	Legs tire and ache.	Less aching.
L	41	Post Phlebitis	11	3680	3450	-230	15	14 7/8	-1/8	Legs ache all the time.	Less aching.

degrees from edema of the lower extremities. Treatment called for leg support, but all patients objected to the unattractiveness of surgical support hose or bandages and refused to wear them for any extended period of time. To treat their edema and to prevent it from worsening, these women were provided with various brands of cosmetically sheer, commercial support hose. The women tested preferred a degree of sheerness that resembled dress hose, but objected to extremely high sheerness that failed to hide the varices and blemishes caused by venous complications. On the basis of these cosmetic considerations and the supportive requirements*, brands of commercial support hose** containing 10-24% elastic yarn were selected:

Brand A —
90% Nylon, 10% "Lycra" spandex

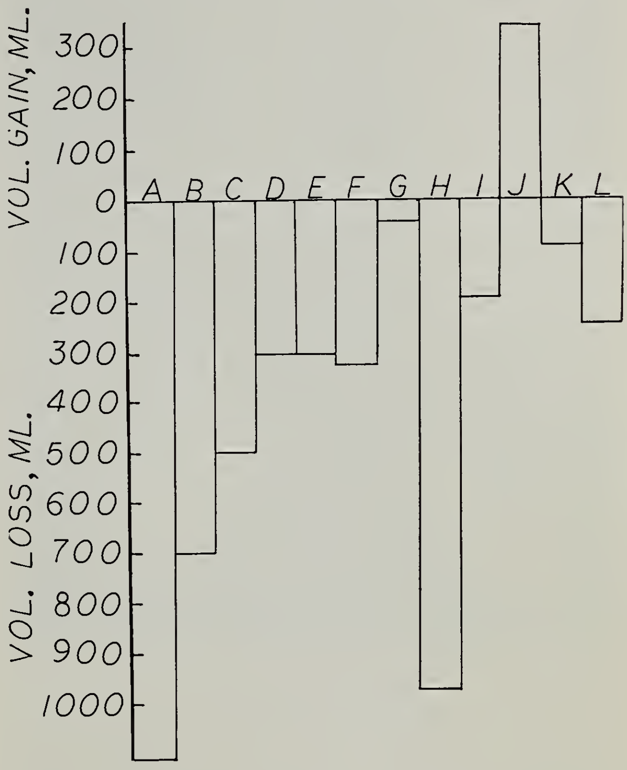
Brand B —
87% Nylon, 13% "Lycra" spandex

Brand C —
84% Nylon, 16% "Lycra" spandex

Brand D —
76% Nylon, 24% "Lycra" spandex

GRAPH I

CHANGE IN LEG AND FOOT VOLUME



At the onset of this study, initial leg and foot measurements were made. The women patients were then instructed to wear the support hosiery regularly. At periodic intervals, the leg was photographed against a blackboard marked in one-inch squares. Then the combined leg and foot volume was measured in an aluminum tank filled with water to an overflow spout. The lower rim of the spout was 18″ above the bottom of the tank. After immersing the foot to the bottom of the tank, the foot and leg volume was determined from the sole of the foot to the height of 18″ (the average height of the knee joint) by measuring the volume of displaced water that overflowed from the spout. The calf was then measured at the largest circumference. The height of the measured circumference was also recorded so that subsequent calf measurements could be made at the same location. The data tabulated in Table 1 and plotted on Graph 1 showed the following results:

The initial leg volume of the patients ranged from 3385 to 4700 ml. The average volume was 3785 ml. The patients then wore the support hose for periods of 1-8 weeks. The retractive pressure of the spandex elastic yarns in the hosiery improved the blood flow (especially venous return) in the lower extremities. This reduced swelling and pain. The final range of leg volumes varied from 2900 to 4100 ml with the average volume of 3453 ml. The loss in volume ranged from 70 to 1700 ml with an average volume loss of 333 ml. This change in volume was significant as illustrated in Figures 1 and 2.

In all cases, except one, decrease in leg volume was accompanied by a decrease or

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*S. M. Ibrahim, "Mechanics of Form Persuasive Garments Based on Spandex Fibers", Textile Research Journal. Sept. 1968. This study provided guidelines for supportive requirements and testing techniques.

**The data was insufficient to distinguish degrees of effectiveness among the different brands of support hose. In general, however, all hose containing 10-24% "Lycra" spandex were cosmetically acceptable and provided effective treatment at various supportive levels.

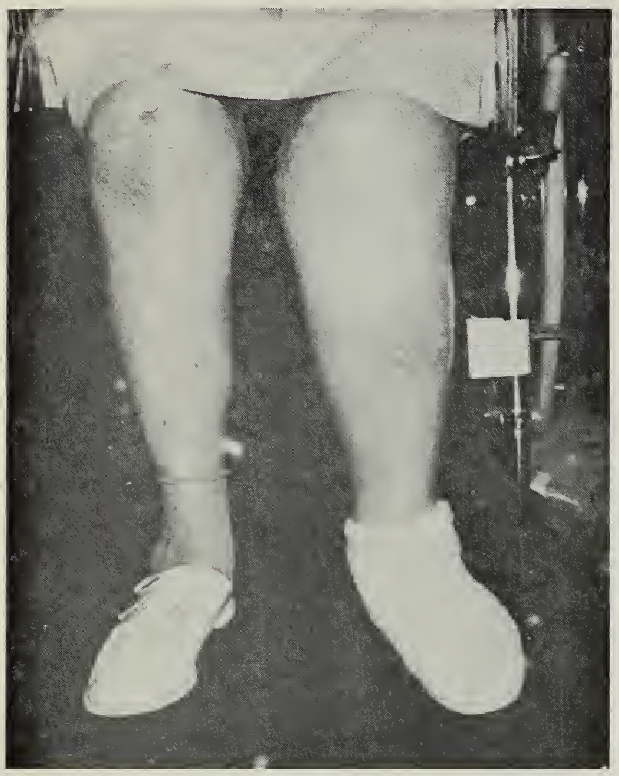

Figure 1
Patient A — Initial

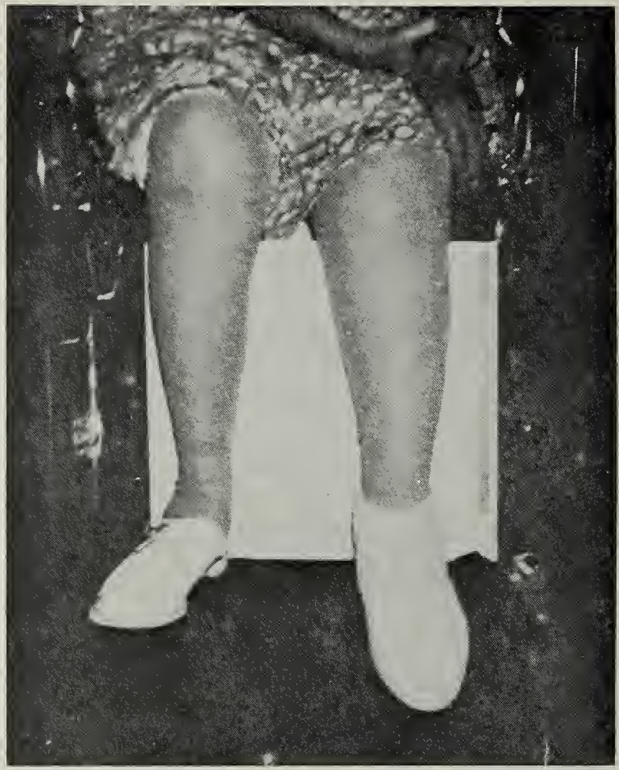

Figure 2
Patient A — 41 Days Later

elimination of the pain and discomfort in the patient's lower extremities. Even in the single exception, swelling began to subside at the conclusion of this study.

Conclusions and Scope

Women in need of leg support often refuse to wear unattractive elastic bandages or surgical hose. They will, however, wear commercially available support hose of cosmetically acceptable sheerness. This hose is an effective replacement of elastic bandages and surgical hose for reducing pain and swelling in the legs of patients suffering from edema. The hose can also help prevent ensuing conditions of phlebitis and other venous inflammatory complications.

Availability of attractive, sheer support hose opens the possibility of its routine use by the general public for fatigue reduction and long range medical benefits. Future research will be directed toward quantitatively defining the benefits derived from the general use of support hose by both men and women. Effects such as relief from fatigue and the reduction of foot and leg swelling will be studied. Long term cosmetic values such as leg shape retention and prevention of stasis discoloration and varicose veins will also be studied.

LIVING DOCUMENT OR DUSTY WORDS

The medical student has a better understanding of the educational continuum when he is convinced that the history he constructs is his signature and professional image to his colleagues. He learns that the history is a living document and not some inert words on paper to be added to the reams of dusty files in the record room.

David Seegal, *Journal of Medical Education* 39:1033, 1964.

Editorials

SMALLPOX VACCINATION: WHO AND WHEN?

Each year in Delaware as throughout the US, school immunization programs offer, among other vaccines, smallpox vaccination and revaccination.

But smallpox has for years been virtually nonexistent in this country (the last imported case was in 1949), and it is also fast disappearing from its last strongholds, Asia and Africa. Rigid immunization regulations concerning travel to and from these areas have reduced the threat to the general public virtually to nil. Yet each year we still continue to immunize millions of children who have virtually no chance of infection, and who run the risk of vaccine-related encephalitis, vaccinia necrosum, and eczema vaccinatum on a significant scale.

The time has come to assign priorities in smallpox vaccination practices. For if smallpox were introduced into this country, those people most at risk would be those likely to come in contact with the infected person: the employees of various health institutions throughout the country. Physicians, nurses, hospital personnel and personnel of other health agencies who deal directly with people with health problems certainly stand a much greater chance of infection than the average grade-school pupil.

With this knowledge, it seems strange that we persist in vaccinating and revaccinating children but make no attempt to update the smallpox immunization status of our own health workers, not to mention ourselves. How many individuals concerned in health activities on a personal contact basis have had a revaccination in the past three years? When were you last vaccinated, Doctor?

It would be wise to rethink some of our vaccination attitudes and practices which, though of great value once, may no longer be valid procedures.

E. F. Gliwa, M.D.

OPPORTUNITIES FOR YOUTH*

With young people all over the world asking for more responsibility in the decision-making processes of their schools, communities, and nation, it is significant that the Peterson administration, working with the Delaware Commission on Children and Youth, has taken steps to give youth just such opportunities.

However, as important as these opportunities for young people are, hopefully the youth of the state can move to become actively involved with their hands and minds in working for the community at large. As Governor Peterson has said, "It is much easier to propose and complain and suggest . . . than it is to actually do something to build a better community."

Governor Peterson has also said that he and the Legislature do need the ideas of the young. What special perspective do the young have to offer to our world? First, they are now involved in the best educational system the country has ever had. They benefit from greater knowledge and the insights of modern scholarship. Second, and perhaps most important, this generation of young people, thanks to the conveniences and advantages which its elders achieved for them, has been able to devote more thinking to the moral and ethical questions about society. As a result we have a generation highly sensitive to the sufferings and problems in the world. The idealism of youth, coupled with the experience of age, can and must be brought together to provide the prespective which will result in a better world.

In our changing and complex society, the answer must be to rely on youth: not a time of life, but a state of mind. Youth is a temper of the will, a quality of the imagination, a predominance of courage over timidity, of the appetite for adventure over the love of ease.

Edward T. O'Donnell, Jr.

*Excepted from an editorial in the Delaware State News August 18, 1969. Edward T. O'Donnell, Jr., who is currently a senior at Colgate University, was a summer assistant to Governor Peterson, working in areas of youth activities and urban affairs under Mrs. Arva Jackson. He is the son of Dr. Edward T. O'Donnell.

President's Page

CHANGING PATTERNS OF MEDICAL CARE

Since it has become apparent that the number of physicians will not increase at a rate proportionate to the increase in population, and because of the increasing demand for care, plans must be formulated now to use physicians more efficiently. Any plan must take into consideration at least two proposals: group practice and the use of paramedical personnel.

Many medical planners feel we need to return to community practice with the general practitioner the primary physician and the core member of a multispecialty group. For the family physician can very capably handle 90 percent of all the medical problems arising in a family, can provide periodic health assessments, and can decide when the specialty members of the group need be called on for their expertise in more limited fields.

A group practice of physicians can handle a large portion of a community's total health needs, especially if paramedical personnel such as the physicians' assistants are included in the group. The physician may then delegate to these properly trained individuals who work under his jurisdiction responsibility for providing appropriate portions of health care.

At the University of Colorado, for the past five years, and in at least ten additional nursing schools more recently, a program for the development of pediatric nurse practitioners has been offered to baccalaureate degree nurses. After an intensive training period, including preceptorship, these nurses can provide some patient care, obtain medical and health histories, perform portions of the physical examination, and give information and counsel in the management of health problems, all under the supervision of the physician. Many of these nurse practitioners are operating very effectively in rural Colorado and as physicians' assistants in cities where doctors are in inadequate supply.

In the state of Washington a pilot program in the extension of the physician's services called Medex is in progress. Fifteen corpsmen, discharged from military service after years of experience, have been selected for the project. They are receiving three months of intensive training at the University of Washington Medical School, and will then serve twelve months as preceptees working with carefully selected general practitioners in rural areas. Upon completion of his training each corpsman will continue as a physician's assistant to his preceptor.

Other universities are entering into similar training programs for paramedical personnel; Duke University has a well developed two-year program.

If private practice is to succeed in meeting the demands for quality health care, group practice, including paramedical personnel, will be necessary to extend services to wider segments of the community and to make the short supply of doctors go around.

Henry H Stroud

THE FORUM

Environment And Health

OUR VOLUNTARY AGENCIES COMBAT SMOKING

James M. Hofford, M.D.

The Delaware Tuberculosis and Health Society, the Delaware Heart Association, and the American Cancer Society, Delaware Division, are public supported and public spirited organizations responsible only to the public they serve and dedicated to its welfare. The value of these organizations in our complex society as a *modus operandi* through which people help people without conflict of interest is easily demonstrated. Their united effort will be recorded in the chronicle of the decline and fall of cigarette smoking.

We are all familiar with the statistics showing lung cancer deaths to be less than three thousand in 1930 but by 1962 totaling 41,000. This increase in mortality correlated with the increased per capita consumption of cigarettes by adults in the United States, from 138 in 1910, to 3,986 in 1961.

In 1954 the famous Hammond-Horn Report of the American Cancer Society caused the first great "cancer scare" relative to cigarette smoking. In 1964 the Surgeon General of the United States released his report on smoking and health creating a second great "cancer scare" with the statements, "Cigarette smoking is causally related to lung cancer," "Cigarette smoking is the most important of the causes of chronic bronchitis," and, "A relationship exists between pulmonary emphysema and cigarette smoking."

In Delaware during the last decade the three societies mentioned above have promoted a tremendous tide of activity directed at educating the public of the link between cigarette smoking and lung cancer, bronchitis, and emphysema. They have instituted meetings to disseminate knowledge of the danger of smoking for people of all ages in schools, churches and organizations of all types. Whenever possible they have joined forces, and at present all are supporting the Interagency Council on Smoking and Health antismoking campaign. A recent public "No Smoking" clinic held at the A. I. duPont Institute attracted several hundred people. Indeed, the very page on which this commentary is written is financially supported by the Delaware Tuberculosis and Health Society. It has replaced and eliminated cigarette advertising in this Journal.

These activities have been a strong force to stem the tide of our American epidemic of lung cancer and obstructive lung disease. Momentum has been achieved on a local and national level that cannot be stopped. The sphere of activity of these agencies is ever increasing and includes other health problems. It encompasses education, research, patient care, heart disease, cancer, the elimination of tuberculosis and, more recently, the front page topic of air pollution. The boundaries of interest are constantly being extended to meet any related public health problem.

In recognition of these activities, all physicians of the Medical Society of Delaware should extend their support and encouragement to these organizations.

This page is sponsored by the Delaware Tuberculosis and Health Society

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Doctor Hofford is the Medical Society of Delaware Liaison to the Delaware Tuberculosis and Health Society and to the Interagency Council on Smoking and Health.

IN BRIEF . . .

Speakers on "Ask the Doctor"

Speakers for January, 1970, on the Tuesday radio program, (11:05 a.m. WDEL) produced by the Medical Society of Delaware are: January 6, Stuart W. Rose, M.D., *Coverage of Post-Hospital Extended Care Services under Medicare*; January 13, John E. Benzel, M.D., *Blood Coagulation*; January 20, Richard Brams, M.D., *Allergy in Children*; January 27, David E. Saunders, M.D., *Cosmetic Surgery.*

In the News

R. Douglas Sanders, M.D., anesthesiologist at Delaware Division, Wilmington Medical Center, won first prize in the oil and watercolor categories at the Physicians' Art Exhibit held during the recent annual meeting of the American Society of Anesthesiologists in San Francisco.

CLINICAL NOTICES AND MEETINGS

Sports Medical Seminar

The University of Delaware will hold a one-day seminar on the Medical Aspects of Sports in cooperation with the Medical Society of Delaware on Saturday, January 24. Current information, concepts and techniques on the prevention and treatment of athletic injuries and the conditioning of athletes will be presented. The program is designed for team physicians, trainers, coaches, athletic directors, student trainers, nurses and others in the field of physical education on the high school and college level. The seminar, includes lecture presentation, booth demonstrations and panel discussion. The $20 fee includes lunch. The fee is $10 for student trainers and managers accompanied by an adult.

Tour to the Soviet Union

An 8-day Medical Tour to the Soviet Union, visiting Moscow and Leningrad and including a comprehensive medical program, has been announced for April 10-18, 1970. The all-inclusive rate is $495 from New York. All inquiries should be directed to Compass Travel Bureau, Inc., 55 West 42nd Street, Nw York, N. Y. 10036. A 15-day tour is available for $775.

Psychiatry in Medical Practice

A seminar workshop series of twenty sessions (10 in Wilmington and 10 in Dover) for non-psychiatric physicians to improve skills of diagnosis, understanding and management of psychiatric problems will be sponsored by Jefferson Medical College, The Wilmington Medical Center, Inc., and the Delaware Academy of General Practice, January 7 to March 11, 1970. Emphasis will be placed on clinical practice and case presentation by a faculty of experienced clinicians. A fee of $25 will be charged. To enroll or for further information contact: Mrs. Anne E. Shane, Executive Secretary, Delaware Academy of General Practice, 1925 Lovering Avenue, Wilmington, Delaware 19806.

FOUNDED
1776

INCORPORATED
1789

PROCEEDINGS OF THE HOUSE OF DELEGATES

1969

MEDICAL SOCIETY OF DELAWARE

The 180th Annual Session of the House of Delegates, Medical Society of Delaware, was called to order in the Delaware Academy of Medicine, 1925 Lovering Avenue, Wilmington, Delaware, on Friday, October 24, 1969, at 2:00 P.M., Charles M. Moyer, President, presiding.

Secretary Abbiss took the roll call, and a quorum was declared.

A motion was made, seconded and approved to accept the minutes of the 1968 Session as published in the Delaware Medical Journal.

As a memorial to the members of the Society who were lost through death during the past year, the assembly arose for a moment of silence as the names were read:

Frank S. Hassler
Lloyd S. Hayes
Alfred Leon Heck
Isaac J. MacCollum
Robert McGregor
Robert O. Y. Warren
George V. Wood

Resolutions considered at the House of Delegates Meeting will be published in the January issue of the Delaware Medical Journal.

The House of Delegates established the Academy of Medicine, Wilmington, as the site of the 1970 Annual Meeting to be held October 17, 1970.

The balance of the meeting consisted of the following reports given by the officers, the committee chairmen, and the liaison physicians.

REPORTS OF THE OFFICERS

REPORT OF THE SECRETARY

Seven meetings including today's meeting were held during this past year. One meeting was socio-economic, six were devoted to the transaction of business matters only and the dinner-dance will be held October 25 at the Wilmington Country Club. All business transacted by the Society has been recorded in the minutes as presented by the Secretary.

The total membership as of October 15 is as follows:

1969

	Members	Dues Exempt Members	Total
New Castle County	362	49	411
Kent County	35	2	37
Sussex County	55	9	64
Total	452	60	512

1968

	Members	Dues Exempt Members	Total
New Castle County	374	41	415
Kent County	37	3	40
Sussex County	49	9	58
Total	460	53	513

Joseph W. Abbiss, M.D., *Secretary*

REPORT OF THE TREASURER

The report of the Treasurer for 1968-1969 is in two sections. The first consists of a statement of income and expenses for the twelve months of calendar 1968. This has been prepared by Haggerty and Haggerty, certified public accountants, and is presented with some condensation from their 1968 audit of the Society's accounts.

The second section is a statement of income and expenses for the first nine months of 1969. This is not audited at the moment, since it is an interim report. The audit for 1969 will be done at the end of this calendar year.

PART I

STATEMENT OF INCOME AND EXPENSES, CALENDAR 1968

Bank Balance Checking Account — December 31, 1967		$ 2,293.30
OPERATING RECEIPTS		$41,336.03
CONTRA RECEIPTS	$32,352.65	
CONTRA DISBURSEMENTS	$32,652.95	
Balance from Contra Funds held in account	$ —300.30	
TOTAL OPERATING RECEIPTS		$41,035.73
Sale of Bank of Delaware and Farmers Bank Stock		+$15,288.00
Sale of Treasury Bills		+$ 6,994.00
OPERATING DISBURSEMENTS		
Personnel	$24,078.11	
Office Operation	$ 6,593.81	
Copying Machine	$ 500.00	
Travel and Expenses	$ 3,024.29	
Annual Meeting	$ 6,741.57	
Subscriptions, Contributions, Dues	$ 585.00	
Operations of Committees and Contingency Funds	$ 2,392.28	
TOTAL DISBURSEMENTS		$43,915.06
Reimbursable Expense	$3,652.37	
Reimbursed Expense	$4,541.71	+$ 889.34
Stock Purchases		—$13,778.66
Purchase of Treasury Bills		—$ 6,648.09
Balance Checking Account — December 31, 1968		$ 2,158.56

ASSETS

INVESTMENTS		
Stock	$25,023.70	
Treasury Bills	$ 6,648.09	
		$31,671.79
SAVINGS ACCOUNTS		
Wilmington Savings Fund Society	$ 7,216.34	
Artisans	$11,415.47	
		$18,631.81
CHECKING ACCOUNTS — December 31, 1968		$ 2,158.56
TOTAL ASSETS		$52,462.16

PART II

INTERIM TREASURER'S REPORT

OCTOBER 1, 1969

Bank Balance Checking Account — December 31, 1968		$ 2,158.56

OPERATING RECEIPTS

	Budgeted	
Dues	$32,000.00	$29,877.00
Exhibits	2,550.00	2,250.00
Grants for Annual Meeting	1,450.00	1,000.00
Dividends & Interest	2,400.00	1,090.28
DMJ Overhead Contribution	980.00	
Banquet	2,385.00	503.00
Miscellaneous	200.00	11.00
	$41,965.00	$34,731.28

CONTRA RECEIPTS

AMA Dues	$27,400.00	$27,579.00
AMA Dues Rebate	279.00	260.40
Scholarships	2,000.00	2,170.00
DMJ Subscriptions	1,300.00	2,598.00
	$30,979.00	$32,607.40

CONTRA DISBURSEMENTS

AMA Dues	$27,400.00	$27,720.00

AMA Dues Rebate	279.00	
Scholarships	2,000.00	2,000.00
DMJ Subscriptions	1,300.00	2,388.00
	$30,979.00	$32,108.00
Balance from Contra Funds held in account		+$ 499.40
TOTAL OPERATING RECEIPTS		$35,230.68
OPERATING DISBURSEMENTS		
Personnel		
Salaries & Employer Taxes	$23,072.00	$17,040.50
Hospitalization	355.00	505.16
	$23,427.00	$17,545.66
Office Operation		
Contribution to Academy	$ 2,500.00	$ 2,500.00
Printing, Postage, Stationery	1,700.00	1,154.59
Telephone-Telegrams	1,200.00	779.71
Audit	200.00	275.00
Office Supplies	1,000.00	592.83
Miscellaneous	100.00	28.81
	$ 6,700.00	$ 5,330.94
Insurance		$ 237.00
Travel and Expenses		
AMA Delegate	$ 1,000.00	$ 369.90
Contingency	1,900.00	1,659.77
	$ 2,900.00	$ 2,029.67
Annual Meeting		
Dining Room Amplification	$ 185.00	
Silver Tray and Service Award	85.00	
Stenotyping	195.00	
Printing, Postage	330.00	$ 471.50
Prospectus	70.00	67.50
Supper, House of Delegates	350.00	
Banquet	3,099.00	
Banquet Entertainment	258.00	
Guest Speakers — Expenses	800.00	50
Reception	400.00	
Clerical Help	300.00	20.00
Janitorial Help	125.00	
Registrars	60.00	
Miscellaneous	50.00	17.78
Office Supplies		53.79
Exhibit Refund		150.00
	$ 6,307.00	$ 781.07
Subscriptions, Contributions and Dues		
Delaware Public Health Association		$ 3.00
Blood Bank	$ 218.00	213.50
AMA-Aces and Deuces	50.00	50.00
Delaware Better Business Bureau	35.00	
Medical Society Executive Association	20.00	30.00
Delaware State Chamber of Commerce	50.00	75.00
Delaware State Science Fair	100.00	100.00
Presidents and Presidents-Elect	10.00	25.00
Contributions — Poison Center	100.00	100.00
	$ 583.00	$ 596.50
Abortion Survey		$ 23.00
Coroners		304.15
Operations of Committees and Contingency Funds	$ 2,048.00	$ 1,607.20
TOTAL DISBURSEMENTS	$41,965.00	$28,455.19
Reimbursable Expense	$2,530.90	
Reimbursed Expense	1,877.31	—$ 653.59
Transfer of $10,000 for Interest Purposes to Artisans' Bank		$10,000.00
Transfer of $5,000 to Checking Account		+$ 5,000.00
Balance Checking Account — October 1, 1969		$ 3,280.46

Lawrence Katzenstein, M.D., ***Treasurer***

REPORTS OF THE STANDING COMMITTEES

BUDGET

The Committee on Budget has met, reviewed the expense and income of the Society for the past year and has discussed the needs of the Society for the year to come. The Committee feels the budget has been prepared as conservatively as possible. We recommend adoption of the following budget for calendar 1970. You will notice that the budget is not balanced. A decision must be reached as to how it can be balanced.

OPERATING RECEIPTS

Dues	$31,000
Dividends & Interest	4,350
TOTAL RECEIPTS	$35,350

CONTRA RECEIPTS

AMA Dues		$28,500
AMA Dues Rebate		280
Scholarships		2,290
DMJ Subscription		2,750
Annual Meeting		
Grants	$1,600	
Exhibit	2,500	
Banquet Ticket Sale	2,900	7,000
TOTAL		$40,820

CONTRA DISBURSEMENTS

AMA Dues	$28,500
AMA Dues Rebate	280
Scholarship	2,290
DMJ Subscription	2,750

Annual Meeting	7,000
TOTAL	$40,820

OPERATING DISBURSEMENTS

Salaries		$22,650
Employer Taxes		950
Hospitalization		475
Office Operation		
Contribution to Academy	$2,500	
Printing, Postage, Stationery	1,862	
Telephone-Telegrams	1,200	
Audit	275	
Office Supplies	1,163	
		$ 7,000

TRAVEL

AMA Delegate	$1,100	
Contingency	1,800	
President-Elect	1,000	
		$ 3,900

SUBSCRIPTIONS, CONTRIBUTIONS, DUES

Delaware Public Health Assn.	$ 3	
Blood Bank	212	
AMA-Aces and Deuces	50	
Delaware Better Business Bureau	35	
Medical Society Executive Assn.	30	
Delaware State Chamber of Commerce	75	
Delaware State Science Fair	100	
Presidents and Presidents-Elect	25	
Contributions-Contingency	100	
		$ 630
Committees and Contingency Fund		$ 2,050
TOTAL DISBURSEMENTS		$37,655

Respectfully submitted,
Lawrence Katzenstein, M.D., *Chairman*
Charles Allen, M.D.
A. E. Bacon, Jr., M.D.
James Beebe, Jr., M.D.
Charles Walker, M.D.

PROGRAM

The printed program reflects the achievements of the Program Committee.

Respectfully submitted,
H. Thomas McGuire, M.D. *Chairman*
Herman Rosenblum, M.D.
Charles L. Minor, M.D.
G. Dean MacEwen, M.D.

COMMITTEE ON PUBLIC LAWS

The Committee on Public Laws met ten times during the last year. A large number of legislative proposals was considered. A large number of specific bills was recommended to the Council for support by the Medical Society of Delaware. And, happily, a great many of the bills supported by the Medical Society have become law.

The Public Laws Committee recommended support for a bill to allow professional incorporation; this bill is now law.

It supported a bill to permit treating minors with venereal disease or pregnancy without parental consent; this bill was passed by the House.

It supported a bill to revoke the *Guest Statute* which provides immunity to the driver of an automobile whose passenger is injured; however, this was not supported by the Council.

It supported a bill to abolish the office of Coroner; this bill is now law.

It supported a bill to liberalize the abortion law; this bill passed.

It opposed a bill requiring parental review of sex education material used in public schools; this matter is still pending.

It recommended support of a bill providing funds for teaching children with learning disabilities; this bill passed.

It recommended the amendment of the bill providing for a Delaware Institute of Medical Education and Research while supporting the passage of the bill in principle. That bill was passed without the amendment suggested by the Council of the Medical Society of Delaware. The sense of that amendment is embodied in a separate resolution which is to be presented to the House of Delegates of this Society at its annual meeting in 1969.

The legislation discussed above represents the matters which seemed to highlight the year's activities. It does not exhaust the list of legislation acted upon by the Committee and by the Council.

Members of the Committee have been active in support of the Society's objectives in other ways. Dr. Bishoff has, because of his interest and his proximity to the Legislature, continued to make himself available to members of the Legislature. Nearly all the other members of the Committee have appeared at one time or another before public hearings either on the abortion law or the sex education law.

One must look beyond the membership of this Committee for many individuals within the Society and outside who have given their time and effort to produce this remarkable near-avalanche of medical legislation.

Many members of this Society other than the members of this Committee have appeared at hearings both in New Castle County and in Dover. I think it is proper to mention specially the efforts of Dr. Andrew Gehret on behalf of the abortion law. We were helped also by William O. Lamotte, Jr., M.D., of this Society; by Mr. Clifford P. Foster of the Health Planning Council; and by Mr. Richard R. Griffith of the Association of Delaware Hospitals.

Because to mention one might be to overlook several, it is perhaps more generous to say that we were greatly helped in our efforts by several attorneys and very many members of the State Legislature.

Finally, although they wished not to be mentioned in this report because they consider their activities merely to be doing their jobs, nonetheless, Mrs. Shane and Mrs. Moore of the staff of the Medical Society of Delaware deserve special thanks for their many trips to Dover; for the endless duplicating of bills; for the many meetings they patiently sat through; and for their canny political know-how.

Respectfully submitted,
Allston J. Morris, M.D., ***Chairman***
Rhoslyn J. Bishoff, M.D.
Christopher R. Donoho, M.D.
Ronald C. Corbalis, M.D.
Floyd I. Hudson, M.D.
Gerald J. Savage, M.D.

PUBLICATIONS

It should be noted that although the publication chores of the *Delaware Medical Journal* are as detailed as those of the state journal with the largest circulation (Pennsylvania, 13,700), Delaware is far and away the smallest with 837. It is our feeling that this Society should indeed be proud that, through the efforts of the many physicians who support the Journal by contributing to it, Delaware can sustain the publication of the *Journal* we believe to be one of the oldest, if not the oldest, in the United States.

During the past year the Journal has continued its editorial policy of following the publication of material of significance to the medical community of Delaware. Agencies and institutions represented among the contributors have included the Department of Mental Health, the Social Security Administration, the Department of Urban Affairs, the University of Delaware, the Association of Delaware Hospitals, and the Delaware Heart Association. Much of this material has been obtained by inviting these persons to write for the *Journal;* their response has been gratifying.

The policy of publishing Highlights of significant local presentations as well as Special Reports of significant meetings attended by State Society members has been continued.

In order to improve the value of textual material, on several occasions simultaneous editorial comment relevant to a particular article has appeared in the same issue. This has usually been prepared by members of the editorial board, but the services of others have been sought and graciously given when the field of necessary expertise was not encompassed by the board. We have been honored to have several of our editorials reprinted by the News Journal.

All manuscripts submitted to the *Journal* are reviewed by two members of the Editorial Board; their services are gratefully acknowledged. Dr. Henry H. Stroud, and Dr. G. Dean MacEwen resigned from the Editorial Board this year, and Dr. Charles Allen was added to the Board. Dr. Davis Durham has acted as financial overseer and consultant and supplied much needed advice and help towards obtaining our needed advertising support. Dr. Lloyd Harrison's prompt attention to the sad duty of supplying the *Journal* with obituaries has eased this difficult task. The devoted work of Mrs. Shane, Mrs. Moore, Mrs. Phillips, Mrs. Garland, and Mrs. Dundon is gratefully acknowledged.

Respectfully submitted,
Robert B. Flinn, M.D., ***Chairman***
Joseph W. Abbiss, M.D.
Davis G. Durham, M.D.
William J. Holloway, M.D.
Bernardine Z. Paulshock, M.D.

DELAWARE MEDICAL JOURNAL

Statement of Receipts and Disbursements

	Year Ended Dec. 31 1968	Jan. 1- Oct. 1 1969
Total Receipts	$26,681.35	$22,932.94
Total Disbursements	$31,967.00	$19,894.20
OPERATING PROFIT OR LOSS	—$ 3,285.65	+$ 3,038.74
Savings Account	$ 6,940.06	$ 7,252.36

Anne E. Shane, ***Business Manager***

REPORT OF THE MEDICAL SOCIETY MEMBERS OF THE BOARD OF TRUSTEES OF BLUE CROSS-BLUE SHIELD OF DELAWARE, INC.

The physician trustees representing the Medical Society of Delaware are James M. Chase, Jr., M.D., Conley L. Edwards, M.D., John J. Egan, M.D., John M. Levinson, M.D., Robert F. Lewis, M.D., and H. Thomas McGuire, M.D.

Doctor Edwards has served on the Finance Committee and Doctor McGuire on the Executive Committe of Blue Cross-Blue Shield of Delaware, Inc.

The Claims Committee reviews claims of doctors and plan members who are asking for a review of allowances. The Claims Committee also acts as the mechanism by which new procedures are introduced into the Plan schedule.

Nine Board of Directors meetings and three Claims Committee meetings were held during the year.

Respectfully submitted,
H. Thomas McGuire, M.D.,
Senior Member

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF DELAWARE

We welcome this opportunity to report to you not only what the Woman's Auxiliary to the Medical Society of Delaware has done this past year, but also what can be accomplished in the future.

In the many meetings, conferences and workshops that I have attended in all parts of the country these past two years, the underlying theme has been: your doctor-husband is too busy and too dedicated to his practice to have time for community involvement. Therefore, it is the responsibility of the distaff side of the family to work for a better community and a better community-doctor relationship. I don't have to tell you what intelligent, charming, and accomplished women you marry; the same efficiency with which your wife runs your home and raises your children is evident in her achievements in the community.

I'd like briefly to highlight some of those activities.

Delaware's contribution to AMA-ERF was $1,880.04 this year. Nationally, the auxiliary gave $428,000 to this fund, and $10,000 more to the Esther Long Memorial Fund. Besides our usual selling projects and contributions, there are two projects that with your support could greatly increase our total donation. One is giving your annual medical school donation through the auxiliary, and the other is instead of giving a Christmas gift to the doctor who has treated you and your family during the year, give a contribution through AMA-ERF to his medical school in his name. There is no better way to show your gratitude.

Through our Health Careers and Recruitment Committee, 21 nursing and medical technology students are being given financial assistance this year. The auxiliary raised $2,485, and $3,000 was given by the Rotary Club of Wilmington. Kent County continues their support of the Future Nurses' Clubs, encouraging them in their projects and giving them advice. For the past year, I have been serving on the Advisory Board of the Health Careers Activities Committee as scholarship chairman. A Health Careers Handbook is being prepared for distribution to all vocational guidance counselors. Since one out of four high school graduates is needed for health careers, the Medical Society and the Auxiliary should work together in an all-out, well-planned recruitment drive for medical and para-medical fields.

We have been more than eager to assist the Medical Society in the matter of legislation. Auxiliary members have canvassed their senators and representatives on the coroner's bill and also the abortion bill. They have been present at hearings to show support of these bills. I hope that you will continue to request our services when needed.

I am sure that I don't have to tell you much about the International Health project. We have been collecting your drug samples and old equipment for two years. This past year over 2500 pounds were sent to the Mennonite Missions. Our thanks to you and your medical assistants who have been aiding us in this endeavor. In this day of the bad doctor's image, I am happy to tell you that our drugs are being packed, stored, and shipped free of charge because the regional manager of the United Van Lines is grateful to the medical profession. In his youth, he spent many months as a patient at the Alfred I. duPont Institute. He is eager for this opportunity to say "thank you".

In New Castle County, 11 teams of doctor's wives have been involved in eye testing for amblyopia. Nineteen hundred children have been screened in 28 preschools and 14 head start programs.

In order to coincide with the county and national auxiliaries, the State Auxiliary, with the consent of their advisory committee, is introducing revisions to the constitution and by-laws enabling us to change our annual meeting from fall to spring. We still plan to have a luncheon meeting on the same day as the Medical Society annual meeting.

A protestor at the AMA meeting in New York told an interviewer that "all that doctors' wives are interested in, are mink coats and the country club." I hope that this report has shown you that while we may be interested in mink coats and the country club, our efforts and concerns have been elsewhere.

We think of ourselves as a committee of the Medical Society of Delaware and hope someday that you will consider a joint husband-wife membership. We feel that we work for every doctor in the community whether he is married or not, whether his wife belongs to or is active in the auxiliary or not, and not just for the doctor who sometimes sits at the head of our own table.

As a purely social project, the New Castle County Auxiliary took a bus expedition to New York to see the musical "Dear World". In the last scene of the play, Angela Lansbury reclines in her underground haven, after disposing of all the villains, and says, "There is nothing so evil in the world, that a good woman can't take care of — in a few hours' time."

She could very well have been referring to the Woman's Auxiliary to the Medical Society of Delaware.

Claudette J. Weiss, ***President***

REPORTS OF SPECIAL COMMITTEES

THE ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY

Although no formal meetings of this committee were held, a very close liaison was maintained between the members of this committee and the members of the Woman's Auxiliary Executive Board.

This committee feels grateful to the Auxiliary for the excellent work it has done this past year, especially in regard to legislative activity and the many service functions the women have performed.

It is this committee's hope that the Council of the Medical Society of Delaware will work ever closer with its Auxiliary in the future.

Respectfully submitted,
Richard H. Wiess, M.D., ***Chairman***
John W. Barnhart, M.D.
Allston J. Morris, M.D.
Ignatius J. Tikellis, M.D.
Leslie W. Whitney, M.D.

AGING

The Committee on Aging held a meeting on June 19, 1969. Present besides the committee members were the directors of extended care facilities in Delaware.

Various problems which the directors face were enumerated and discussed as follows:

1) Difficulty in getting orders re-signed for Medicare patients after three months; for other patients after one month.
2) Difficulty in getting physicians to visit Medicare patients at least once a month.
3) Difficulty in getting physicians to come out to visit patients in an extended care facility.
4) Difficulty in getting doctors to sign certification that a patient needs skilled nursing care. (Patient can't get Medicare benefits until certification is signed.)
5) Difficulty in getting complete pre-admission records and discharge summaries for patients.
6) Trouble in getting a physician to pronounce a patient dead.
7) Large number of empty ECF beds on Fridays.
8) High cost of prescriptions.
9) Need for refresher courses for nurses, such as I.V. techniques.
10) Getting a body to the hospital for an autopsy because ambulances won't transport a body unless an organ donation is involved.
11) Arranging transportation for chronically ill and feeble patients to get orthopedic x-rays and the like. Perhaps a voluntary transportation corps is the answer.

The general feeling was that the meeting had been of some benefit in allowing the administrators to enumerate and discuss the problems they encounter.

Respectfully submitted,
Allston J. Morris, M.D., ***Chairman***
Leonard Lang, M.D.
Howard H. Lyons, M.D.
Norman P. Jones, M.D.
Charles Riegel, M.D.
William D. Shellenberger, M.D.
William J. Vandervort, M.D.

AMA-ERF

An AMA-ERF Liaison Committee of the House of Delegates of the American Medical Association made an in-depth study of the entire AMA-ERF program. The results of this were presented at the recent AMA meeting in New York City in June 1969.

The results are summarized briefly as follows:

1) The AMA-ERF is not involved directly with the research or responsible for the results of such research as conducted with monies supplied by the tobacco industry. The money (for cardio-pulmonary research) goes through the AMA-ERF, and the latter accepts no financial asset through these gifts. Only expenses incurred for administrative costs are paid. The Institute for Biomedical Research or its personnel are not associated in any way with said research.
2) Loan Guarantee Fund. Least accepted by medical students, interns, or residents because of interest rates of repayment. Reconsideration of this interest rate was suggested (7% simple interest for repayment spread over maximum of 10 years).
3) Outright gifts to Medical Schools. Made with no strings attached whether used for loans, research, building, or salary replacement. The committee felt certain alterations are in order at this time to reassess value of this faction of AMA-ERF.
4) Institute for Biomedical Research. Institute located in part of upper three floors of AMA Chicago headquarters. The committee had highest praise for this basic science research group (in cellular biology), which doesn't have to teach or administer, and suggested that all should visit it when possible.
5) Program in medical journalism. Writing improvement for practicing M.D. under guidance of AMA Editorial Department. Eight-week summer institute held annually for medical students interested in career as medical journalists.

During 1968 104 Delaware physicians contributed $3518; during 1967 116 Delaware physicians contributed $4003.

Respectfully submitted,
William D. Shellenberger, M.D., ***Chairman***
Patrick F. Ashley, M.D.
Joseph A. Elliott, M.D.
Joseph F. Hughes, M.D.

COMMUNITY COUNCIL ON EMERGENCY SERVICES

The Medical Society of Delaware has continued to successfully support the Community Council on Emergency Services, which now involves the following thirteen agencies:

City of Wilmington
Medical Society of Delaware
Delaware State Police
St. Francis Hospital
Delaware State Osteopathic Society
New Castle County Police & Ambulance Services
Delaware Association of Nursing Homes
New Castle County Volunteer Ambulance & Rescue Committee
Wilmington Medical Center
Fire Chiefs Association
Riverside Hospital
American Red Cross
State Board of Health

This Council has over the past year developed or recommended programs in the following areas:

I-95 communications system.
Legislation for licensing ambulances.
I-95 emergency turn-around areas.
Disaster planning.
Treatment of nuclear accidents.
State-wide emergency communications system.
27-hour ambulance attendant qualifying course.
Care of the psychiatric patient.
Hospital marking signs on I-95.
Emergency evacuation by helicopter.
Many others.

The program has continued to be successful and to keep open lines of communications with all agencies providing emergency services in the New Castle County community. It is hoped with the involvement of the State Board of Health and the impending legislation that such will be the case throughout the State shortly.

Respectfully submitted,
William H. Duncan, M.D., ***Chairman***

ENVIRONMENTAL AND PUBLIC HEALTH

At the meeting of the Committee, Thursday, September 11, 1969, the following recommendations were made:

1) That the Water and Air Resources Commission report directly to the Delaware State Board of Health, both its monitoring findings and its recommendations;
2) That standards for all areas including industrial, commercial. and residential, be as high as those for rural areas;
3) That the SO_2 at .04 parts/million causes symptoms according to HEW's report and would leave no margin of safety; the Committee recommends that the SO_2 be reduced to .025 to .030 parts/million as the proposed standard;
4) That the particulate matter have a margin of safety so that the mixed contaminates could not cause human illness or destruction of vegetation. It is therefore recommended that the ug/m^3 be 60;
5) That all literature and pertinent findings of the Water and Air Resources Commission be sent to the Committee for study.

The Committee desires that its recommendations be accepted by the Medical Society of Delaware.

Respectfully submitted,
Frank T. O'Brien, M.D., ***Chairman***
Edward F. Gliwa, M.D.
James M. Hofford, M.D.
Leonard P. Lang, M.D.
William J. Vandervort, M.D.

EDUCATION

The Education Committee of the Medical Society of Delaware has been deeply interested in the aspects of continuing education for physicians, but because of the availability of so many programs in the New Castle County area, it has particularly avoided any duplication of effort.

With the impetus, however, of the success of the Seaford Seminars over the last several years, contacts were made with the University of Delaware and the Jefferson Medical College with the idea in mind of expanding the programs outside of New Castle County and in addition to the Seaford Seminars. Multiple meetings were organized, and subsequent visitations were made to all the hospitals in Kent and Sussex Counties. The result of this has been the establishment of a program to be administered by the University of Delaware and sponsored by the Jefferson Medical College and the Medical Society of Delaware for the four downstate hospitals.

The usual and normal contributors to our educational program have been contacted to provide the necessary financial support.

The programs as they are presently constituted are listed as an attachment to this report.

It is the hope of the committee that this will be a successful and lasting program, but it will be evaluated on its own merits by each of the institutions involved before consideration will be given to its continuance.

Respectfully submitted,
William H. Duncan, M.D., ***Chairman***
George Botte, M.D.
Jason L. Campbell, M.D.
John A. J. Forrest, Jr., M.D.
G. Barrett Heckler, M.D.
David Platt, M.D.
Rubin A. Teixido, M.D.

(Unless otherwise noted, all speakers are from the Faculty of Jefferson Medical College.)

MILFORD MEMORIAL HOSPITAL

October 21, 1969 — Clinical Management of Electrolyte Disturbances
Michael L. Simenhoff, M.D., Ch.B., Assistant Professor of Medicine

November 18, 1969 — Mortality Disease Conference: Hepatic Disease
O. Dhodanand Kowlessar, M.S., M.D., Professor of Medicine

December 16, 1969 — Thyroid Disease
George Fisher, M.D., Assistant Professor of Clinical Medicine

January 20, 1970 — Consecutive Case Conference: Upper Gastrointestinal Hemorrhage
O. Dhodanand Kowlessar, M.S., M.D., Professor of Medicine

February 17, 1970 — Gynecologic Endocrinology
Alvin F. Goldfarb, M.D., Assistant Professor of Obstetrics and Gynecology

March 17, 1970 — Consecutive Case Conference: Pneumonia
Joseph S. Gonnella, M.D., Associate Dean and Assistant Professor of Medicine

April 21, 1970 — Mortality Conference: Myocardial Infarction
Leslie Weiner, M.D., Assistant Professor of Medicine

May 19, 1970 — Clinical Use of Anticoagulants
Warren P. Goldburgh, M.D., Assistant Professor of Clinical Medicine

KENT GENERAL HOSPITAL

October 28, 1969 — Hypertension — Diagnosis and Management
James E. Clark, M.D., Professor of Medicine, Hahnemann Medical College

November 25, 1969 — A General Discussion of Pulmonary Diseases
Richard T. Cathcart, M.D., Associate Professor of Medicine

December 16, 1969 — Medical-Surgical Emergency: Acute Gastrointestinal Hemorrhage
O. Dhodanand Kowlessar, M.D., Professor of Medicine

January 27, 1970 — Unconscious or Comatose Patient
Philip D. Gordy, M.D., M.S., Professor of Surgery (Neuro-surgery)

February 24, 1970 — Gynecologic Endocrinology: Thyroid-Adrenal Function in Reproduction
Ronald E. Traum, M.D., Instructor in Obstetrics and Gynecology

March 31, 1970 — Common Renal Disorders
Michael L. Simenhoff, M.D., M.B., Ch.B., Assistant Professor of Medicine

April 28, 1970 — Cardiology: Management of Angina and Infarction
John Killough, M.D., Assistant Dean

May 26, 1970 — Diabetes: Diagnosis and Treatment
Joseph Rupp, M.D., Associate Professor of Medicine

BEEBE HOSPITAL

October 3, 1969 — Clinical Application of Scanning Techniques
Carl M. Mansfield, M.D., Assistant Professor of Radiology

November 7, 1969 — Pulmonary Insufficiency: Evaluation and Management
Richard T. Cathcart, M.D., Associate Professor of Medicine

December 5, 1969 — The Patient with G.I. Bleeding
O. Dhodanand Kowlessar, M.S., M.D., Professor of Medicine

February 6, 1970 — Management of the Patient with Angina Pectoris: Medical and Surgical
Albert Brest, M.D., Professor of Medicine

March 6, 1970 — New Drugs of Importance in Treating the Patient with Heart Disease
Walter Herman, M.D., Associate in Medicine

April 3, 1970 — Peripheral Vascular Disease
David Naide, M.D., Instructor (Section on Vascular Disease, Department of Medicine) Graduate Hospital of the University of Pennsylvania School of Medicine

NANTICOKE MEMORIAL HOSPITAL

October 2, 1969 — Management of Patient with Liver Diseases
Lee Sataline, M.D., Clinical Assistant Professor of Medicine

November 6, 1969 — Common Hematologic Disorders
Thomas Gabuzda, M.D., Assistant Professor of Medicine

December 4, 1969 — Cardiac Arrhythmias: Diagnosis and Management
Warren P. Goldburgh, M.D., Assistant Professor of Clinical Medicine

January 5, 1970 — Interesting Problems in Roentgenographic Diagnosis
Jack Edeiken, M.D., Professor of Radiology

February 5, 1970 — More Common Pediatric Problems

Mary L. Soentgen, M.D., Professor of Pediatrics
March 5, 1970 — Diagnosis and Management of Pancreatitis
Joseph Medoff, M.D., Associate Professor of Clinical Medicine
April 2, 1970 — Inflammatory Diseases of the Small and Large Bowel
O. Dhodanand Kowlessar, M.D., Professor of Medicine
May 7, 1970 — Office Diagnosis of Endocrinologic Disorders
Joseph Rupp, M.D.. Associate Professor of Medicine

FEDERAL MEDICAL PROGRAMS

The members of the Committee on Federal Medical Programs have been informed on federal health legislation through the staff of the Society.

As Chairman of the Committee I recommend that the function of this Committee, namely the responsibility of closely following the developments of all Federal Medical Programs with special reference to their impact on the private practice of medicine, could be carried out by the Public Laws Committee or other designated committee through a sub-committee.

Respectfully submitted,
Leonard P. Lang, M.D., *Chairman*
Rhoslyn J. Bishoff, M.D.
Kenneth M. Corrin, Jr., M.D.
Marvin H. Dorph, M.D.
John J. Egan, M.D.
Robert C. Kingsbury, M.D.
Allston J. Morris, M.D.
Stuart W. Rose, M.D.

FORMULARY ADVISORY BOARD

The Formulary Advisory Board was formulated in late 1968 as a result of deliberations between members of the State Pharmaceutical Society and the Liaison Committee for Pharmacy of this Society. The outgrowth of the developments of certain guidelines resulted in the appointment of four physician-members to meet with the Pharmaceutical Society and repreesntatives of dentistry and osteopathy to create at the first meeting on September 11, 1968, the present Formulary Advisory Board of which the chairman is Mr. David Krigstein and the vice-chairman, Doctor Ward Briggs representing the Council of the Society.

The aims and purpose of this Board are to produce or develop a type of formulary which in its acceptable form could establish certain criteria for a voluntary formulary to be used throughout the state. In spite of the creation of certain guidelines it was initially proposed that this formulation be accomplished by an effort to purchase drugs from reputable pharmaceutical manufacturers in such quantity and at such a standard of quality as would benefit the public. To this end the established procedure was to submit bids to selected pharmaceutical manufacturers covering eighteen to twenty selected drugs designed as a pilot procedure. Response to these efforts has been unavailing from the standpoint of the attitude of pharmaceutical manufacturers as to the cost.

Present efforts of the Advisory Board continue in finding ways and means of obtaining acceptable drugs from the small selected list in an effort to establish the basis of a permanent formulary. At the most recent meeting of the Advisory Board in July the various frustrations were aired, and the following suggestions for implementing a formulary were made:

1) The various representatives of the Formulary Advisory Board will be asked to go back to the various organizations they represent and get approval to ask the Welfare Department to submit a bid.
2) To this end the Medical Advisory Committee will approach the Welfare Department to explore means of implementing this plan.
3) In an educational effort to keep the members of the Society informed of developments, the State Medical Journal can be used for periodic articles having to do with the understanding and acceptance of this voluntary effort.

Respectfully submitted,
Ward W. Briggs, M.D., *Chairman*
William Holloway, M.D.
William O. LaMotte, Jr., M.D.

GRIEVANCE

The Grievance Committee held no meetings this year as there were no cases to be considered.

Respectfully submitted,
Albert Gelb, M.D., *Chairman*
John B. Baker, M.D.
H. Thomas McGuire, M.D.
Daniel J. Preston, M.D.
Sylvester W. Rennie, M.D.

MATERNAL MORTALITY

This report will summarize the activity of this committee during the past year. Most important in this activity has been a frank attempt to determine the appropriate role of a state maternal mortality committee.

Early in the year, the chairman entered into advisory discussions with Dr. Lennard L. Weber, chairman of the committee on maternal welfare of the Philadelphia County Medical Society. This is the oldest maternal mortality committee in the country, and Doctor Weber had long chaired it with distinction. Doctor Weber would have visited Delaware in May to evaluate our statewide needs. Unfortunately, this was prevented by his untimely death. Doctor Weber's help and advice were, however, a tremendous help, and resulted in some of the recommendations contained in this report.

1. *Ten Year Maternal Mortality Statistics.* The 10 year statistics for New Castle County have been completed. These will be submitted for publication in the Delaware State Medical Journal early next year. Unfortunately, we have been unable to compile similar statistics from the lower counties. Included in recommendations below is a proposal for a method to obtain the necessary information to more completely evaluate maternal care, especially in regard to maternal mortality. We have been completely unsuccessful in obtaining statistics from the 1607th USAF Hospital (MAC) at Dover Air Force Base. Records are kept there for only 2 year periods, then sent to a staging area. We hope to retrieve the necessary information retrospectively, and have been assured of complete cooperation in future reporting.

2. *Appointments of New Members to the State Maternal Mortality Committee.* The present chairman has prepared a list of proposed members, one from every hospital in Delaware including Dover Air Force Base, to be presented to the incoming president of the State Medical Society. These members will be requested to report every maternal death occurring in their respective hospitals within 30 days. These members will be responsible for reporting the name and hospital record number to the chairman of this committee.

3. *Adoption of a Reporting Form for Each Maternal Mortality Occurring in the State of Delaware.* Attached is a copy of the form used by the Philadelphia County Medical Society maternal mortality study. It is proposed that the mortality committee adopt a similar form, which is suitable for statistical analysis, with or without computer support, to meaningfully analyze maternal mortality records in the future. With better reporting, and better analysis, we can determine the quality of obstetrical care in Delaware, and know best those areas which might be improved. (Copy on file in Society office).

4. *Quarterly Meetings of the State Maternal Mortality Committee.* It is suggested that the State Maternal Mortality Committee meet 4 times a year, 2 meetings in Wilmington and 2 in lower counties. If necessary, 2 of these meetings will be conducted by the chairman, and 2 by the vice chairman of the State Committee. These meetings would review all maternal deaths since the last meeting and classify them according to the recommended method of the AMA Committee on Maternal and Child Care, which is used by the Philadelphia study committee. (Copy on file in Society office).

5. *Appointment of Vice Chairman and Duration of Service on Maternal Mortality Committee for All Members.* When the chairman is from northern Delaware, the vice chairman might be appointed from lower Delaware. If all members served for 3 years on this committee, one-third of all members being replaced at yearly intervals, the committee would always have a nucleus of experienced members, with new people constantly being added from the various hospitals.

The exception would be that each vice chairman would serve in that role for 3 years, and would then serve as chairman for 3 years. Six years seems a long period of service, but continuity in these matters seems to be important, and this system would guarantee responsible leadership for long periods of time, representing both the northern and southern regions. The appointment of a vice chairman would be alternated between New Castle and the lower counties.

6. *State Medical Society Abortion Committee.* The present chairman was privileged to work on the legislative proposal for the new abortion law that was passed in Delaware this year. This law is patterned closely on the Maryland law, which was in turn similar to segments of the British Abortion Act. A salient feature of the Delaware law is the requirement of a reviewing authority in each hospital and an annual review of all abortions performed in the state by the State Board of Health.

The review authority in the Wilmington Medical Center is an abortion committee, which reviews all proposed therapeutic abortions on a weekly basis, and make its decisions on a majority rule basis, using the new Delaware Abortion Law for its, (the committee's) determinations. The expanded maternal mortality committee, with its representatives from every hospital in the state, might be helpful in establishing the required reviewing authority in each of the hospitals concerned, where this has not been done.

7. *Delaware State Neonatal Mortality and Morbidity Committee.* Without overlapping similar functions of the State Health Department and existing committees of the State Medical Society, the present chairman would suggest consideration of forming a committee concerned with prenatal mortality and morbidity. This would be primarily a pediatric province, but, as an obstetrician I should like to see obstetrical representation and close coordination with the maternal mortality committee (which might be changed to Maternal Care Committee, or something less morbid than "mortality committee").

A statewide concern with perinatal matters would seem especially appropriate at a time when, with increased emphasis on family planning, the fewer pregnancies undertaken by each family are particularly meaningful. Outstanding advances are being made in neonetology touching both obstetric and pediatric specialities, and there is increased concern regarding litigation.

Respectfully submitted,
William D. Johnson, M.D., ***Chairman***
A. M. Devenis, M.D.
Winfried Mroz, M.D.
John C. Rawlins, M.D.

MEDICAL ECONOMICS

Blue Cross-Blue Shield Group Insurance continues to be made available to all members of the Society. Membership in the Blood Bank Group is paid by the Society for its members.

Higher limits of coverage have been made available to members under fifty years of age under our income protection plan.

The State and County Medical Economics Committees held a combined meeting at which Mr. James Castle presented a progress report on the Society's Keogh Fund.

Changes in the Fund were outlined in the April 1969 Newsletter.

The Board of Directors of PRO Fund, Inc., voted to drop the sales charge from the Fund at a meeting on April 30. Prior to this announcement only those investors using PRO Fund under qualified retirement programs (the Keogh Act and other pension plans) had been able to purchase fund shares without sales charge. Those people wanting to purchase PRO Fund outside of a retirement program paid a maximum sales charge of 6%. For purchases on and after May 1st, the Fund is available to anyone without sales charge.

An income dividend of $0.07 per share was payable on May 28th to shareholders of record on May 21st.

During the past year the rates for professional liability insurance for Delaware physicians have been sharply increased. The Medical Society conferred with Mr. Robert A. Short, Insurance Commissioner, regarding a proposed rate increase of 75% for liability insurance. The Society agreed to a 65% increase in order to assure that coverage would be available. Subsequently we contacted and advised Mr. Short that practically all increases on physicians' and surgeons' policies exceeded 100%.

According to Mr. Short, increase in limit factors contained in the filing was not considered by the Commissioner in advising the Society of the proposed rate increase. We have discussed the situation with Mr. Short, and he in turn has contacted the Insurance Rating Board. It would appear that no misrepresentation exists in the filing, but that Mr. Short inadvertently did make misrepresentations to the Society based upon the advice of the Insurance Rating Board as to the effect of the filing. To date, we have heard nothing from Mr. Short or the Insurance Rating Board regarding this matter.

In an attempt to stop soaring malpractice costs the Society is the sponsor of three professional liability bills now before the state legislature. The bills are:

H.S. 1 for H.B. 276. Passed the House 6/25/69. Resides in the Senate Health and Welfare Committee. Introduced by Representative Sebrell (Dover) and others. This bill would provide immunity for members of the Medical Council of Delaware, Board of Medical Examiners of Delaware, censor committees, and members of hospital committees whose function is the review of medical records, etc., from suit or liability for action taken as members of such organizations and committees.

H.B. 277. Passed the House 6/19/69. Introduced by Representative Sebrell (Dover) and others. This bill amends the code relating to payments made as an accommodation upon a personal injury claim and admissibility thereof as evidence.

H.B. 278, with H.A. 1. Passed the House 6/19/69. Introduced by Representative Sebrell (Dover) and others. This bill amends the code relating to the limitation of actions for personal injuries by adding an exception as follows:

> Where the alleged wrong or harm upon which such cause of action is based is shown not to have been reasonably discoverable on the date of accrual of such cause of action, the two-year limitation period shall not begin to run until such alleged wrong or harm shall be reasonably discoverable. A party relying upon this exception shall have the burden of proving such cause of action to come within the exception.

The Society will continue its campaign to adopt a positive stance to gain legislative approval in dealing with court malpractice actions.

Respectfully submitted,
Davis G. Durham, M.D., ***Chairman***
Olin S. Allen, M.D.
I. Favel Chavin, M.D.
J. Robert Fox, M.D.
C. E. Graybeal, M.D.
Pierre L. LeRoy, M.D.
Ignatius J. Tikellis, M.D.

MEDICAL SCHOLARSHIPS

Joseph A. Kuhn was this year's recipient for the $500 yearly scholarship renewable upon the successful completion of each of his next three years and with no appreciable change in his financial situation during this period.

The $500 scholarship was renewed for Mr. Charles F. Yeagle, III, Mr. Richard Bonder and Mr. John R. Shockley, Jr.

The aims of the present $2,000 annual investment in medical education were vigorously discussed at a Scholarship Committee meeting held in Dover on June 5.

After reviewing the minutes of the Ad Hoc Committee appointed to study the expenses and income of the Medical Society of Delaware, the Scholarship Committee has accepted the wisdom of changing the program to a Student Loan Fund as recommended by the Ad Hoc Committee, the details to be worked out at a later date.

Respectfully submitted,
Gordon Keppel, M.D., *Chairman*
John E. Benzel, M.D.
Edward S. Dennis, M.D.
Oliver A. James, M.D.
A. M. Devenis, M.D.

MEDICAL SCHOOL FOR DELAWARE

The Medical School Committee, as of this moment, appears to have completed its function.

A luncheon was held for all members of the Committee by Dr. Trabant of the University of Delaware on March 7, 1969. Following this meeting, it was reported in the Wilmington Morning News on July 15, 1969, that the Medical School Bill had been signed by Governor Russell Peterson; and the Council is on record approving that H.B. 360, providing for a Delaware Institute for Medical Education and Research, be supported by the Society. Recently the members of the Committee saw no need for another meeting.

All in all, the original purpose of the Committee, to institute a Medical School for the State of Delaware, seems to have been accomplished. It appears that the first medical class will enter September 1970, according to Dr. Trabant.

It would now seem that a decision needs to be made whether the Medical School Committee should be continued, or disbanded, and direct all efforts to the Foundation. Or, if the House of Delegates feel that the Medical School Committee should be continued, its aims and purposes should be redefined.

Respectfully submitted,

C. Anthony D'Alonzo, M.D.,
James E. Marvil, M.D., *Co-Chairmen*
James Beebe, M.D.
Andrew M. Gehret, M.D.
Pierre L. LeRoy, M.D.
John M. Levinson, M.D.
Charles Levy, M.D.
James T. Metzger, M.D.
Frank T. O'Brien, M.D.
Otakar J. Pollak, M.D.
Willard F. Preston, M.D.
Howard Wilk, M.D.

MEDICAL SERVICE & PUBLIC RELATIONS

The Society operates an informal Physician Placement Service, which has been quite active this year. The Society was responsible for securing Doctor Dennis for the Smyrna-Clayton area.

The WDEL radio program continues to be extremely popular with the public. Station WTHD, Milford has approached the Society with the idea of having a like program involving physicians from Kent and Sussex Counties. It is hoped this program will get off the ground this year.

Doctor Furlong has indicated he would like some help with the Society's Explorer Post. This is an active, vigorous group interested in medical and para-medical careers.

The Speaker's Bureau continues as a workable, realistic public relations project.

The health columns made available to weekly newspapers by the Society office have not been used on a regular basis; hence, it was agreed the Society would not get involved in recommiting themselves to a daily or weekly column.

The Committee was involved in a well-planned, well-developed campaign to abolish the coroner system.

Another successful campaign was launched to liberalize the abortion laws.

Mrs. Marea Alexander, Director, Health Careers, Association of Delaware Hospitals, approached the Committee on co-sponsoring a Health Fair. Cosponsorship would mean help in planning and probably help in paying a percentage of the costs. The Committee supported the idea in principle but felt more information would be needed, including costs, before presenting to the Society.

In these times of increasing criticism of health delivery, the Society needs to do much more in the field of public relations on behalf of physicians.

Respectfully submitted,
John F. Gehret, M.D., *Chairman*
John W. Alden, Jr., M.D.
Alfred E. Bacon, Jr., M.D.
Alfred Lazarus, M.D.
James R. McNinch, M.D.
Robert Meckelnburg, M.D.
W. Philip Portz, M.D.

MEDICINE AND RELIGION

The Chairman of the Medicine and Religion Committee attended the Regional Meeting of State Chairmen of the Committee of Medicine and Religion in New York in the spring. The meeting was very worthwhile and provided many excellent ideas for the local committee. Some of these ideas are now being implemented.

Clergymen are being notified when any of their church members are patients in the Delaware Division of the Wilmington Medical Center. It is hoped to expand this program to the other hospitals as well.

A plan to have "clergy" badges available at the hospital reception desks is under consideration. It is thought this will enable the clergy to gain entrance to their patients' rooms more easily.

Respectfully submitted,
Richard Taylor, M.D., ***Chairman***
John B. Baker, M.D.
Sarah Bishop, M.D.
The Rev. Lloyd Casson
Robert L. Dewees, M.D.
James J. Gallagher, M.D.
William T. Hall, M.D.
The Rev. Charles Hart
Thomas H. Hogshead, M.D.
Richard H. Weiss, M.D.

MEDICO-LEGAL

The following is the report of the joint Medico-Legal Committee of the Delaware Bar Association and the Medical Society of Delaware.

Firstly, I would like to express my particular thanks to our co-chairman, Albert L. Simon, Esq., and to our secretary, Miss Janet C. Butler, for their expertise and work with your committee. As in the past, I am pleased to report that our activities have been quiet.

Our chief concern has been in the field of malpractice and, through our Interprofessional Code of Conduct, these problems have been effectively resolved by means of the Malpractice Screening Panel.

We have had evening hearings at the Academy of Medicine, which are frequently long and tedious. I am, however, pleased to report that the complainants, as well as members of our Society, have, through this device, an opportunity to explore their positions outside of a courtroom and that, during the past year, none of our members have been forced to present their position in the courtroom.

Because our membership is rather small, your committee has had to ask members of our Society, who are not on the committee, to assist us in this work. They have been most generous in their contribution of time and effort.

Members of our committee are in almost daily conference with lawyers, members of our Society, insurance companies, and the press in matters relevant to our interprofessional conduct.

We have had the guidance and support of the Supreme Court of Delaware, the Federal District Court, the Superior Court of the State of Delaware and the tribunals of the City of Wilmington. We have also had complete cooperation from the News-Journal papers.

Your Malpractice Screening Panel has had hearings approximately once a month. At each of these, our members have been guided by counsel, each of whom has rightfully charged a fee. There have been out-of-court settlements on some of these problems, and these have been underwritten by insurance carriers. There is no doubt that this has increased the insurance rates for our members. However, your committee feels the value of out-of-court settlement far outweighs its cost.

The medical-legal climate in the State of Delaware is unusually good, and spurious complaints are infrequent.

I would hope that members of our Society would address their difficulties by way of their President or their Executive Secretary to this committee, which stands to assist in any way.

Respectfully submitted,
James T. Metzger, M.D., ***Co-Chairman***
Albert L. Simon, Esq., ***Co-Chairman***
Kurt Anstreicher, M.D.
Donald W. Booker, Esq.
S. Ward Casscells, M.D.
H. James Conaway, Jr., Esq.
Leslie M. Dobson, M.D.
David A. Drexler, Esq.
Howard P. Ennis, Jr., Esq.
Martin Gibbs, M.D.
Thomas G. Hughes, Esq.
Aubrey B. Lank, Esq.
Rodney M. Layton, Esq.
Pierre L. LeRoy, M.D.
Harold Leshem, Esq.
William T. Lynam, III, Esq.
James R. McNinch, M.D.
Charles Minor, M.D.
McHenry Peters, M.D.
William Prickett, Esq.
Gerald J. Savage, M.D.
Harold C. Schmittinger, Esq.
Carl Schnee, Esq.
William F. Taylor, Esq.

MEDICO-PHARMACEUTICAL AFFAIRS

No matters for the consideration of the Medico-Pharmaceutical Affairs Committee of the Medical Society were brought to its attention during the year 1969.

Accordingly, it held no meetings and has no further report.

Respectfully submitted,
Harry Taylor, M.D., ***Chairman***
Everett D. Bryan, M.D.
Ted Chronister, M.D.
William O. LaMotte, Jr., M.D.
Harry Repman, M.D.

MENTAL HEALTH, ALCOHOLISM, AND DRUG DEPENDENCE

The Committee on Mental Health, Alcoholism, and Drug Dependence met and recommended that high school children statewide be informed of the hazards of all drugs — marihuana, LSD, heroin, amphetamines and barbiturates — and of alcohol.

Members have been involved in the development of a statewide plan on alcoholism in Delaware and methadone and alcohol clinics at the Wilmington Medical Center. They have also assisted in the development of policy for the Department of Mental Health. They assisted in the drafting and enactment of new drug legislation in Delaware.

Respectfully submitted,
H. Thomas McGuire, M.D., ***Chairman***
I. Lewis Chipman, Jr., M.D.
Richard Delaplaine, M.D.
Richard J. Kester, M.D.
Joyce Pearson, M.D.
William J. Vandervort, M.D.

PREPAYMENT

At a meeting December 12, 1968, the proposed Blue Shield 80% coverage program was outlined. The committee recommended approval of the program by the Council when six reservations and changes brought out had been made. The Council approved the report on December 19, 1968.

Dr. Baganz proposed (December 5, 1968) that the Medical Society of Delaware establish an economic guideline to keep physicians' fees adjusted to changes in the economy produced by inflation. This remains a pressing and unresolved item of business.

Approval was given by letter ballot to extend prevailing fee coverage to six groups doing business within the state. Blue Shield regarded them as potential prevailing fee customers. If all were enrolled, about 2600 employees would be added to those now covered. The Council later approved this action.

At a meeting in July, the committee recommended to the Council that the Medical Review Subcommittee be made responsible for utilization review of physicians' services under Medicare and Medicaid as well as prevailing fee. This was adopted by Council July 31, 1969.

Recently approval was given by letter ballot for a variation in the 80% coverage Blue Shield program. This change will provide full coverage for certain diagnostic procedures whether done by hospital physician or private laboratory.

In submitting this report, the Chairman extends his thanks to each member for his capable, thoughtful and time consuming service.

Respectfully submitted,
R. Douglas Sanders, M.D., ***Chairman***
Herbert M. Baganz, M.D., ***Vice Chairman***
Joseph W. Abbiss, M.D.
Olin S. Allen, M.D.
Joseph A. Arminio, M.D.
John W. Barnhart, M.D.
Joseph E. Belgrade, M.D.
James M. Chase, Jr., M.D.
Conley L. Edwards, M.D.
John J. Egan, M.D.
Jack Gelb, M.D.
Martin Gibbs, M.D.
David A. Levitsky, M.D.
Harold S. Rafal, M.D.
Karl S. Russell, M.D.
Allen H. Seeger, M.D.
Harry Taylor, M.D.
Howard Wilk, M.D.

MEDICAL REVIEW

(Subcommittee of the Prepayment Committee)

During the year, eight meetings of the Medical Review Committee were held; a total of 68 claims were reviewed, 43 prevailing fee claims, 24 Medicare claims and one Medicaid claim. All cases were brought to the attention of the committee by the Plan medical consultant who thought that the case needed special or individual consideration, or directly from the attending physician, who was requesting special consideration for unusual circumstances surrounding an individual claim.

In several instances, the physicians requesting special consideration were invited to attend the meeting and to discuss their case in detail.

In October of 1968, the recomputed 90th percentile ceilings were reviewed by the Medical Review Committee, as well as the Prepayment Committee. In this recomputation, the representations of the various specialty groups serving on the Medical Review Committee helped in assisting the Plan in the analysis of the revised 90th percentile ceilings.

The committtee aided in the establishment of guidelines regarding the compensation for assistants at surgery. Assistants at surgery is to be a covered service only if there are no surgical residents available in the hospital concerned and it is the physician's usual practice to bill all patients for this service.

During the year, several questions concerning utilization were referred to the committee for their consideration. With the increasing number of questions concerning the medical necessity of physician services, particularly extensive home and office visits under the Medicare and Medicaid Programs, the Medical Review Committee agreed to establish a sub-committee of physicians to establish guidelines for the implementation of the medical necessity requirement of the Medicare and Medicaid Programs.

The problem of physicians' billing for services that have been purchased elsewhere was presented to the Review Committee by the Plan, the specific instance being physicians' billing Medicare and Medicaid at a marked-up price over the amount they paid for laboratory services purchased from out-of-state laboratories. After considering the statement of the Council of the Medical Society of Delaware and the statement of the Judicial Council of the A.M.A., the Medical Review Committee agreed that a markup could be added to the purchase price of services only if the physician could document the additional cost involved in securing a specimen and billing the patient. A claims processing expedient was agreed upon, but the committee recommended to the Plan that they notify all physicians that they must justify any mark-up over the purchase price for these services.

At several sessions during the year, it was recommended that membership on the Medical Review Committee be rotated in order to broaden the exposure of the various physicians in private practice to the activities of such a committee. In addition, it has been suggested that sub-committees of the Medical Review Committee be appointed in order to facilitate the processing of those claims that are in question and also make meeting attendance less of a problem to the total group. The establishment of a sub-committe on utilization is the first step in this direction. As prevailing fee coverage expands, the sub-committee or platoon system may prove to be the most expeditious method of reviewing special or individual consideration cases.

Respectfully submitted,
R. Douglas Sanders, M.D., ***Chairman***
Herbert M. Baganz, M.D., ***Co-Chairman***
James M. Chase, Jr., M.D.
Conley L. Edwards, M.D.
John J. Egan, M.D.
John M. Levinson, M.D.
Robert F. Lewis, M.D.
Edgar R. Miller, Jr., M.D.
H. Thomas McGuire, M.D.
Harold S. Rafal, M.D.
Harry Taylor, M.D.
Leslie W. Whitney, M.D.
Howard Wilk, M.D.

REHABILITATION

Established in September, 1968, the Committee on Rehabilitation has focused its attention primarily on the Vocational Rehabilitation Division (Delaware State Department of Public Instruction). During the past fiscal year, F. Arthur Brill was appointed State Director of Vocational Rehabilitation, and the Division now is in the process of reorganization, which will increase facilities and services for caring for the disabled.

A new office is being established in Dover to provide additional service to the people in Kent and Sussex Counties. The Dover office will have on its staff a medical consultant on a part-time basis, bringing to four the total number of Division Medical Consultants.

During the year, 671 clients of the Rehabilitation Division achieved gainful employment, bringing to 12,723 the number rehabilitated since the inception of the program in 1939. Another 2,287 persons received some rehabilitation service as compared to 1,671 in the previous year.

The Committee wishes to thank physicians and hospitals and sanitoriums for their active role in making referrals: approximately 55 per cent of those made.

The Vocational Rehabilitation program purchased services from physicians for examination, surgery and treatment of 2,834 rehabilitation clients at a cost of $149,048. An additional $85,845 was spent for hospital fees for clients under the program.

Respectfully submitted,
Martin B. Pennington, M.D., ***Chairman***
Haynes B. Cates, M.D.
H. George DeCherney, M.D.
William T. Hall, M.D.
Edward S. Parvis, M.D.
Ethel Platt, M.D.
David L. Schafer, M.D.

SCHOOL HEALTH

The School Health Committee continued to concern itself this year with the subject of health education including family life education. As a result of action taken by the Society in 1968 in adopting the two resolutions presented by this committee as it related to family life education, a meeting was held with the Dean of the School of Education, University of Delaware. The Dean agreed that the preparation of teachers in the technique and skills of health and family education was highly desirable; however, his approach would be somewhat different from what we had proposed. He was not in agreement that special courses should be designed for this purpose in educating the general teacher but felt that the subject matter should be interwoven into the regular curriculum.

Members of this committee who serve on the School Health Advisory Committee of the State Department of Public Instruction initiated a proposal recommending that the State Board of Education establish a position of Coordinator of Health Education in their department. This matter is still under consideration by the State Board of Education.

The School Health Committee has also concerned itself this year with the concept of developing school-based neighborhood health centers. This program would provide for some medical screening procedures, nurse and social worker counseling, some routine medical care, and a referral service. Attempts are being made to secure Federal funding for a demonstration project to initiate a program of this type.

Respectfully submitted,
E. F. Gliwa, M.D., ***Chairman***
Rhoslyn J. Bishoff, M.D.
Thomas R. Brooks, M.D.
Robert W. Frelick, M.D.
Charles Green, M.D.
Harry G. Neese, M.D.

John C. Rawlins, M.D.
William D. Shellenberger, M.D.

VENEREAL DISEASE

Venereal disease continues to be a very serious problem in Delaware.

This year legislation was introduced in the State Legislature, as a result of work done by the Venereal Disease Committee in 1968. The bill introduced at the request of the Medical Society of Delaware by Senator Dean Steele is still pending and has been assigned to the Senate Health and Welfare Committee. The bill, in essence, would require the reporting of all reactive serological tests for syphilis, as presumptive evidence of venereal disease, as well as positive smears and cultures in cases of suspected gonorrhea to the Public Health Department. We will work to secure passage of this bill when the Legislature reconvenes.

Respectfully submitted,
L. William Ferris, M.D., ***Chairman***
Patrick F. Ashley, M.D.
Winder L. Porter, M.D.
Donald Schetman, M.D.
Casimir Vileisis, M.D.
Rafael A. Zaragosa, M.D.

THE AMA DELEGATE

Following is a report of actions of the House of Delegates at the Annual Covention of the American Medical Association in New York City, July 13-17, 1969:

Adopted a resolution calling for continuation of medical care by commissioned officers of the U.S. Public Health Service for Indians on reservations.

Adopted a resolution to change the current consumer-provider ratio on health planning boards under the Comprehensive Health Planning Act.

Urged the AMA to secure "appropriate payment" to physicians who are forced to complete complex and detailed governmental reports.

Urged a change in the Medicare law to allow direct admission of patients to extended care facilities when less than acute hospital care is required.

Urged discussions with governmental agencies aimed at reducing paperwork.

Referred to the Board of Trustees a resolution reiterating AMA opposition to the extension of Medicare benefits to those under age 65.

Referred to the Board of Trustees a resolution urging development of a National University of Health Sciences under the Department of Defense.

Adopted a resolution calling for consultation with state medical societies by the AMA before granting financial support to any local or area health service project in that state.

Referred to the Board a resolution that would have stripped the Division of Public Affairs of its AMPAC responsibilities. The Board was ordered to report on whatever action it takes in connection with the resolution at the next Clinical Convention.

Condemned chiropractic.

Referred to the Council on Medical Education a series of resolutions concerning establishment of an American Board of Allergy with instructions that a progress report be presented at the Clinical Convention in Denver in December.

Approved a series of reports from the Council on Medical Education dealing with "essentials" and including two reports concerning osteopathy. One would provide for participation of doctors of osteopathy in AMA-approved internship, the other for DOs in AMA-approved residencies.

Encouraged government subsidies to Schools of Nursing Education.

Encouraged enrollment in diploma and practical nursing programs and encouraged recruitment of allied health personnel in the armed forces into civilian health professions.

Urged the U.S. Food and Drug Administration to adopt an AMA suggestion dealing with labeling and identifying the fatty acid composition of certain foods.

Called for publication of information on football helmet standards and discouragement of the practice "spearing."

Adopted sets of model medical staff by-laws, rules and regulations, one for large departmentalized hospitals and the other for non-departmentalized facilities.

Encouraged joint meetings of hospital medical staffs and their initiation by constituent and component medical societies. Also encouraged were the meetings of the staffs of two or more hospitals with overlapping medical staffs within a logical geographic area.

Recommended continued liaison with the Student American Medical Association. The Board urged local medical socities which have medical schools in their jurisdiction to establish liaison with SAMA.

Called for the Board of Trustees to initiate a study of physicians who are not members of the American Medical Association and then make recommendations to the House and state and local societies as to how the medical profession "may more wisely unify itself under the AMA banner . . . "

Referred to the Board a resolution calling for organized medicine to "take a stand unalterably opposing all . . . pornographic material and that appropriate action be taken . . . " by the House to counter pornographic material which falsely claims to be scientific material.

Called for a study on whether a federal law requiring safety lights on all rail vehicles is needed.

Respectfully submitted,
H. Thomas McGuire, M.D.

THE REPRESENTATIVE TO THE DELAWARE ACADEMY OF MEDICINE

As your representative to the Delaware Academy of Medicine this past year, I have attended the meetings of the Executive Committee and have kept abreast of the activities of the Academy.

There have been no physical changes in the Academy or its environment this past year, although further consideration is being given to the installation of modern audio-visual facilities and the possibility of carpeting the Academy flooring to improve the acoustics in the Auditorium.

The Library is open in the evenings as last year, and its use in the evenings has increased.

The total membership has not changed significantly during the past year. The annual meeting was held January 22nd, and the speaker was George F. Bass, Ph.D. This was a dinner meeting and was well attended. At this meeting Dr. Shands was honored by the presentation of a scroll for his many years of service to the Academy and given honorary membership in the Academy.

The Student Financial Aid Committee has granted loans to a number of individuals this year to the amount of $40,000, increasing the distribution of loans and grants to a total, since its inception, of $160,000.

The Academy is serving as a meeting place for most major medical activities in the state and is continuing its function of service to the professions of Medicine-Dentistry and to the community at large.

Respectfully submitted,
Norman L. Cannon, M.D.

AMERICAN CANCER SOCIETY, DELAWARE DIVISION, INC.

Through its Professional Education Program, the Delaware Division of the American Cancer Society continued to communicate information concerning cancer to the medical and allied professions. Highlighting the program were workshops for nurses, guest speakers for the medical education lectures of the Wilmington Medical Center, Kent County Medical Society, and the Delaware State Dental Society. and a refresher course for physicians in proctoscopic techniques. The Society sponsored the attendance of resident physicians at several national conferences and in July awarded $10,000 to Tomas Kuon, M.D., for a fellowship in medical oncology, a pilot project with the Wilmington Medical Center and Jefferson and Temple Medical Schools.

Through its public education programs the Society continued to reach out to industry, schools, colleges, clubs, and organizations with information on the various sites of cancer and the importance of periodic examination. A special public education project emphasized the importance of the proctoscopic examination.

The Delaware Division of the American Cancer Society continued to coordinate and support the Interagency Council on Smoking and Health, whose programs included films, speakers and educational TV for schools, a smokers' withdrawal clinic, and safety programs for industry.

The service program for the medically indigent continued with payment for palliative and chemotherapeutic drugs, transportation, dressings, homemaker service, prostheses and rehabilitation, and equipment for hospitals. In this area, I served as Chairman of the Service Committee, and medical advisor for "Reach to Recovery" Programs for post-mastectomy patients.

The Division supports grants for clinical investigation, scholarships for undergraduates in the biological sciences, and graduate study for nurses.

The Division appreciates the continued support of members of the Medical Society of Delaware in furthering its programs of information and cancer control.

Respectfully submitted,
Oscar N. Stern, M.D., *Liaison*

CHILD DIAGNOSTIC AND DEVELOPMENT CENTER OF DELAWARE, INC.

On June 30, 1969 the Child Diagnostic and Development Center of Delaware completed four and a half years of service as an evaluation clinic for children with neurologic handicaps from the State of Delaware. The Center continues to be administered through the State Board of Health with financial support being provided by Children's Bureau, Department of Rehabilitation Services. The basic staff and method of operation have continued the same.

During the year terminating June 30th, 166 new patients were seen for complete evaluation, and 167 children were seen for various follow-up examinations. The nurse coordinator of the Center made 64 home visits for new patients' evaluation and made a total of 102 visits to patients' homes for follow-up.

Of the new patients seen, 94 were mentally retarded to some degree and 9 others showed developmental delays, making a total of 103, or 60% of new patients evaluated, who had some degree of mental retardation. One-hundred and twenty-five patients were 7 years of age or younger, and an effort is being made to encourage referrals early in life. Private physicians were the greatest referral source with schools following second and public health sources third. Most of the children seen came from Wilmington and New Castle County with only 11% of the patients from Kent and Sussex Counties.

During the year a satellite operation in Sussex County was considered because of the small percentage of cases seen outside of New Castle County. Because of an insufficient number of personnel and inadequate funds, thought of the satellite center in southern Delaware needed to be postponed until additional funds and personnel become available.

It appears as though the Child Diagnostic and Development Center is providing a needed service for Delaware as referrals increase each year, and now a waiting period from receipt of referral and evaluation of the child may be as long as four or five months.

Henry H. Stroud, M.D., ***Liaison***

DELAWARE ASSOCIATION OF MEDICAL ASSISTANTS

The Delaware Association of Medical Assistants has held two state meetings this year: the Mid-Annual, in Dover on January 25, with the Kent County Chapter as hostesses and the Fifth Annual Meeting in Wilmington on September 13, with the New Castle County Chapter acting as hostesses. At both meetings excellent educational programs were presented, with outstanding speakers in both medical and legal fields.

The New Castle County Chapter has continued its policy of presenting a Brandywine College student with a scholarship to assist her in her second year of study as a Medical Assistant.

I feel this group can contribute much to the medical profession and would urge all physicians to support them in any way possible. If you are not familiar with their program may I suggest you try to acquaint yourselves with the purpose and work of this organization.

Respectfully submitted,
Bayard R. Vincent, M.D., ***Liaison***

DELAWARE DIABETES ASSOCIATION

The American Diabetes Association continues to be active in Delaware through the Delaware Diabetes Association with both professional and lay members.

"Why wait?" the Diabetes Detection Drive conceived and organized by the Delaware Diabetes Association and the Delaware State Board of Health in June of 1967, continues on a regular basis with free tests being performed every Wednesday at eleven locations throughout the state. Dextrastix technique is being used with the material being purchased and supplied by the State Board of Health. The statistics for 1968 are as follows:

Total screened	2.581
Number of positives referred to physicians	102
Newly discovered "unknown" diabetics	25

The "mothers of diabetic children" as well as "young people with diabetes" (teenage diabetics) meet four times a year for discussion and films with physicians and dietitians attending. There are 89 members in these two groups.

The Delaware Diabetes Association sponsored five children with diabetes mellitus at a summer camp.

The Spring Workshop Annual Meeting that was held in April with the local physicians in attendance was successful, and a fall program meeting in November is planned with a guest speaker. The current total membership of the Delaware Diabetes Association is 269.

The annual meeting and the Central Council meeting of the American Diabetes Association was held in New York City on June 26, 1969, and the Delaware Diabetes Association was represented by three delegates (one professional, one lay, and one observer). The Executive Director, Mr. J. Richard Connelly, reported briefly that the fund raising survey of the American Diabetes Association indicated that patient education rated as first priority followed by professional education and lastly, research. The survey recommended that the National Fund Raising Campaign be postponed. However, plans are still in preparation for the institution at some future date of a National Fund Raising Campaign in conjunction with which additional trained personnel and space will be required in the near future as an operating national health agency with the enlargement to include non-professional members. The Committee on Professional Education encouraged publicity to the profession concerning post graduate courses that are regularly offered with the coming schedule including January 1970 at Pittsburgh, Pennsylvania; 1971 at Rochester, Minnesota; 1972 Miami, Florida. It was also called to the attention of the Executive Committee that, in connection with regional medical programs, diabetes needs better recognition before the funds are fully committed elsewhere.

Dr. Lewis B. Flinn reported for the Committee on Bequests of the American Diabetes Association and displayed a new pamphlet entitled "How to Give Without Sacrifice: the Use of a Charitable Trust" and recommended that it be distributed to lawyers and trust managers who work in estate planning. He also reported that 1.25 million dollars have been given since the bequest program began.

Respectfully submitted,
Herbert M. Baganz, M.D., ***Liaison***

DELAWARE HEART ASSOCIATION

The Delaware Heart Association has continued in its role in developing and supporting programs directed to the diagnosis, treatment and prevention of heart disease within the State of Delaware. Major programs this year have included an Instructor Training Program with approximately 125 individuals designated by each health institution within the state to be trained as instructors in cardiopulmonary resuscitation. This will be a continuing program with refresher courses held each six months for those previously trained. Certficates were issued to those who satisfactorily demonstrated proficiency in cardio-pulmonary resuscitation technique.

In addition, the rapid Streptococcus Detection Laboratory operated in the Wilmington Medical Center by Drs. William J. Holloway and Herman Rosenblum has been able to expand their services so that F. A. culture techniques have been made available to patients throughout the State of Delaware.

The Delaware Heart Association has continued to support the Interagency Council on Smoking and Health. Programs directed by the Council have included smoking withdrawal clinics, publicity releases, and specific programs directed to children within the school systems.

The professional education program will be expanded this year to include a seminar on cardiology to be held in the spring of 1970. This will include the annual David Flett duPont lectureship. In addition, the DHA has continued to support certain of the Seaford Seminars related to blood vessels diseases.

Lastly, the Research Committee of the DHA has been fortunate in being able to fund most of the research grants requested within the State of Delaware. These research projects are being conducted at the Wilmington Medical Center, the University of Delaware, and at the nearby New Bolton Research Center of the University of Pennsylvania School of Veterinary Medicine. The Research Committee, Program Committees, and Medical Advisory Committees recognize that they could not function without the support of many members of this State Medical Society.

Respectfully submitted,
Alfred E. Bacon, Jr., M.D., ***Liaison***

DELAWARE NURSES' ASSOCIATION

I attended the regular monthly meeting of the Delaware Nurses' Association in March 1969 to establish a relationship between the Medical Society of Delaware and the Delaware Nurses' Association. I tried to find out what the nurses felt that their greatest needs in Delaware were at this time. I also tried to determine what we as physicians could do to help them solve their problems in Delaware. As Liaison Representative I offered my services to them should they feel I could be helpful.

On April 11-12, 1969 I attended the Second National Conference for Representatives of State Medical Societies' Liaison Committee with Nursing in Chicago. This was a most interesting two-day meeting, and a report on it was made to the Council of the Medical Society at the July 31, 1969 meeting.

In April I again attended the Delaware Nurses' Association monthly meeting to report on the April conference in Chicago. At this time the nurses indicated a great interest for a state-wide conference based on the National AMA-ANA Conference.

In August I studied a report from the National Commission for the study of nursing and nursing education and completed a questionnaire with the assistance of Mrs. Sara Reed, President of the Delaware Nurses' Association, which was to express the Medical Society's point of view concerning the educational needs for nurses in the '70's.

On May 9, 1969 I attended a morning seminar entitled "A Challenge for the Future — Nursing in the '70's" co-sponsored by the Delaware League for Nursing and the Delaware Nurses' Association.

As a result of my meetings with the Delaware Nurses' Association, attendance at the national meeting in Chicago and the local seminar in Wilmington, I strongly urge the Medical Society of Delaware to arrange for a state-wide conference jointly sponsored by the Medical Society of Delaware, the Delaware Nurses' Association, and the Delaware League for Nursing to discuss and study the changing roles of the nurse and physician in today's society. I feel that much can be gained to improve patient care, to provide a wider range of services, and to utilize nurses and physicians more efficiently on the basis of their training and ability if such a conference is held in the spring of 1970.

I shall be most willing to assist in the preparation of such a conference and feel that it would benefit all citizens of the State of Delaware.

Respectfully submitted,
Henry H. Stroud, M.D., ***Liaison***

DELAWARE TUBERCULOSIS AND HEALTH SOCIETY INTERAGENCY COUNCIL ON SMOKING AND HEALTH

During the past year the Delaware Interagency Council on Smoking and Health, which is supported by the Delaware Tuberculosis and Health Society, Heart Association of Delaware and the Delaware Cancer Society, has employed Miss Joann Richmond, who will supervise all activities and programs relative to smoking and health.

Secondly, there had been a full page advertisement in the Delaware State Medical Journal that was supported by one of the tobacco companies as a smoking ad. This ad has been cancelled; and in place of it the Delaware Tuberculosis and Health Society has purchased a page of advertising for a similar amount of money, and this page will be used in the interest of environmental health.

Respectfully submitted,
James M. Hofford, M.D., *Liaison*

MENTAL HEALTH ASSOCIATION OF DELAWARE

This year emphasis has been placed upon increased public service in the following areas:

1) Drug abuse information
2) Volunteer service for mental hygiene clinics to assist with the increased outpatient load
3) Development of additional inner city information and referral services
4) Mental health in industry
(Two-day seminar held for company executives)
5) Mental health in schools
(Monthly seminars held for school nurses and guidance counselors)
6) Appointment of a part-time field representative for Kent and Sussex Counties

Respectfully submitted,
H. Thomas McGuire, M.D., *Liaison*

REPORT OF THE NOMINATING COMMITTEE

Your Committee on Nominations has met and considered positions to be filled for the year October, 1969 through October, 1970. We repectfully submit the following nominations:

Vice President — Calvin B. Hearne, M.D. — Wilmington
Secretary — Joseph W. Abbiss, M.D. — Wilmington
Treasurer — Conley L. Edwards, M.D. — Wilmington
Representative to the Delaware Academy of Medicine — Norman L. Cannon, M.D. — Wilmington

Committee on Program
H. Thomas McGuire, M.D. — Chairman, New Castle
Herman Rosenblum, M.D. — Wilmington
Charles L. Minor, M.D. — Wilmington
Sylvester W. Rennie, M.D. — Wilmigton
Alfred E. Bacon, Jr., M.D. — Wilmington
Walter Omans, M.D. — Dover

Committee on Publications
Robert B. Flinn, M.D. — Chairman, Wilmington
Davis G. Durham, M.D. — Wilmington
Joseph W. Abbiss, M.D. — Wilmington
Bernadine Z. Paulshock, M.D. — Wilmington
William J. Holloway, M.D. — Wilmington
Kazuo K. Kimura, M.D. — Wilmington

Committee on Public Laws
Allston J. Morris, M.D. — Chairman, Wilmington
Rhoslyn J. Bishoff, M.D. — Dover
Norman L. Cannon, M.D. — Wilmington
Calvin B. Hearne, M.D. — Wilmington
Christopher R. Donoho, M.D. — Newark
Ronald C. Corbalis, M.D. — Wilmington
David A. Levitsky, M.D. — Wilmington
C. E. Graybeal, M.D. — Milford
Kenneth M. Corrin, Jr., M.D. — Wilmington
Ali Z. Hameli, M.D. — Wilmington
Edward S. Dennis, M.D. — Dover
Marjorie J. McKusick, M.D. — Wilmigton
Joseph E. Belgrade, M.D. — Wilmington
Floyd I. Hudson, M.D. — Dover
Gerald J. Savage, M.D.

Committee on Budget
Conley L. Edwards, M.D. — Chairman, Wilmington
Lawrence Katzenstein, M.D. — Wilmington
Ervin L. Stambaugh, M.D. — Rehoboth
Alfred E. Bacon, Jr., M.D. — Wilmington
John A. J. Forest, Jr., M.D. — Dover
Charles Walker, M.D. — Wilmington

Members of the Board of Trustees, Blue Cross-Blue Shield of Delaware, Inc.
Conley L. Edwards, M.D. — Wilmington
James M. Chase, Jr., M.D. — Dover
H. Thomas McGuire, M.D. — New Castle
John M. Levinson, M.D. — Wilmington
Robert F. Lewis, M.D. — Seaford
Alfred Lazarus, M.D. — Wilmington

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Richard W. Tobin, M.D.
R. Walter Powell, M.D.
Robert L. Meckelnburg, M.D.
Warren R. Johnson, M.D.

Delegate — American Medical Association
H. Thomas McGuire, M.D.
(term expires 12/31/71)

Alternate Delegate — American Medical Association
William O. LaMotte, Jr., M.D.
(term expires 12/31/71)

Respectfully submitted,

Henry H. Stroud, M.D., *Chairman*
Richardson B. Glidden, M.D.
John J. Egan, M.D.
Oliver A. James, M.D.
John W. Alden, Jr., M.D.

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